FLIGHT and AIRCRAFT ENGINEER

First Aeronautical Weekly in the World

Founded 1909

No. 2110. Vol. LV. THURSDAY, 2 JUNE, 1949

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Overseas : Twelve months, £2 18s. 6d.
BY AIR : To any country in Europe (except Poland). Twelve months, £5 1s. 0d. Six months, £2 10s. 6d.
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Ominous Hints

PUBLICATION of the report of the Helmore Committee in the near future was foreshadowed by the Minister of Civil Aviation at the Air Registration Board luncheon in London last week. Until the report appears, one cannot comment in detail on its recommendations, but hints—very ominous hints—were dropped by Lord Brabazon of Tara, chairman of the A.R.B., concerning one aspect of the report, and in his reply Lord Pakenham did little to allay the fears felt by those who know either all the recommendations or at least their general tenor.

It appears that, in the opinion of the Helmore Committee, the Minister of Civil Aviation should appoint the members of the Board. In that suggestion one can trace the obvious influence of the Treasury, and perhaps it is but natural that an organization which costs not inconsiderable sums of money should be regarded by those who hold the purse strings as a logical subject for complete Government control. But in our view any financial and administrative advantages that might result would be more than offset by the disadvantages.

Under its present constitution the Air Registration Board is an independent body, on which are represented the various civil aviation interests such as operators, constructors, insurers, pilots and the general public. The work of the Board covers a very wide field, from U.K. representation on I.C.A.O. for the purpose of establishing international standards of airworthiness to the technical examination of aircraft engineers, and from the approval and supervision of manufacturers' organizations in connection with the issue of certificates of airworthiness for series aircraft to the complete investigation, including flight-testing, of prototype aircraft and associated equipment for the granting of a certificate of airworthiness.

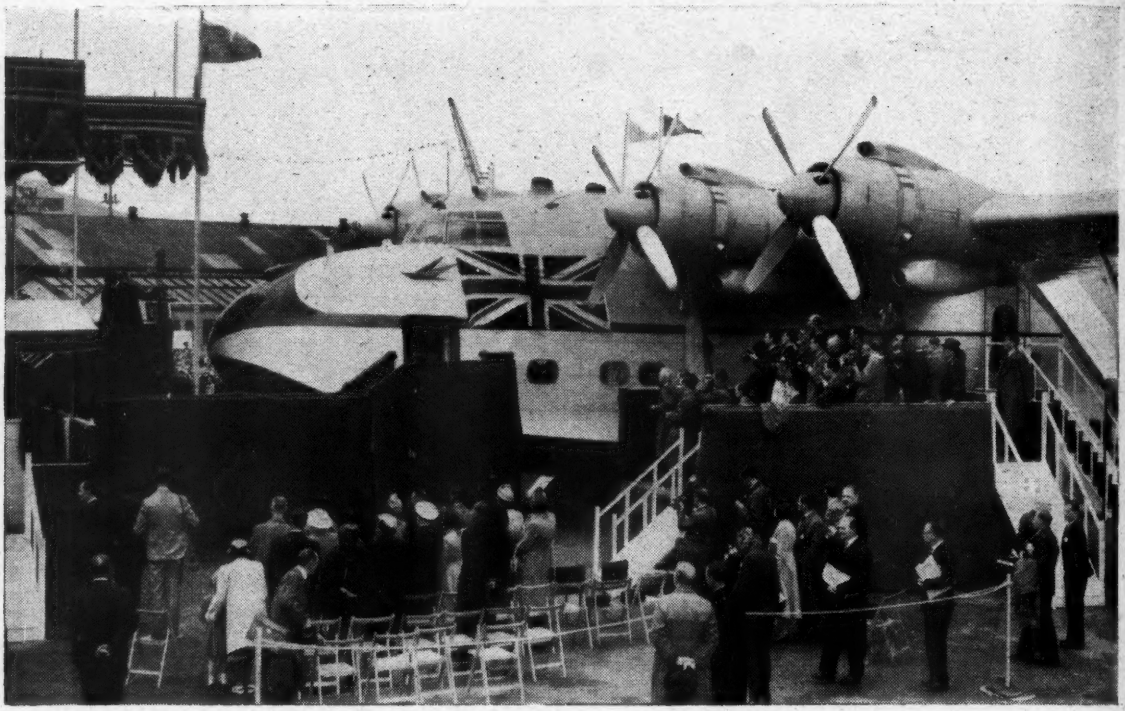
The strength of the Air Registration Board as at present constituted lies in its independence, and in the fact that none of the interests represented can have a preponderating influence on its decisions. If the A.R.B. comes under direct Government control, the independence which has been the mainspring of the good work done up till now will vanish while costs, instead of falling, will assuredly rise.

Plight of the Clubs

PRIVATE flying in this country has undeniably been having a thin time since the war, and recently it has suffered additional discouragements, yet never was there greater enthusiasm among its exponents than at the present time. It is remarkable that the majority of clubs have been able to keep going, and it is fortunate indeed that their keenness and optimism seem almost unlimited. Persecution, it is said, strengthens a cause, and while we would not accuse anyone of persecuting the private flying movement, complete failure to give a helping hand is not so very far removed from it. It is not without significance that the great air powers are those in which every sort of kindred activity and support receive encouragement. In this country the cutting of all such things to the bone may well be weakening the whole structure beyond the danger point.

Of verbal encouragement there has been plenty, but on the strength of their past record private owners and their clubs deserve something more tangible. This does not necessarily mean a subsidy as such; for example, it would not be difficult to make out a case for granting contracts for initial training and refresher courses.

The most recent causes for disquiet are the loss, and/or threatened loss, of several airfields around London to which reference is made on another page; the growing number of rules, regulations and controls, to keep abreast of which is becoming a full-time job; and the increasing difficulty of obtaining and keeping licences and endorsements, now more or less essential if the pilot is not to be denied the use of large and important areas over Great Britain in all but perfect weather. We are well aware of the need to safeguard commercial air traffic, but the M.C.A. also has a responsibility to the small man. Of this more will be said later.



The Immaculate Solent Aotearoa II, *for Tasman Empire Airways, on the occasion of receiving her name from Princess Elizabeth at Belfast last Thursday. Immediately ahead of the bows is the Royal rostrum.*

BELFAST'S ROYAL DAY

Princess Elizabeth Names the Tasman Solent "Aotearoa II"

WHAT must surely have been the world's most scrupulously furbished flying boat sat last Thursday cradled on its beaching chassis before the main erecting shop at Short and Harland's Belfast works. This, the first of four Solent Mk. IVs for Tasman Empire Airways, Ltd., was to receive the honour of being named by Princess Elizabeth. In the morning, Her Royal Highness, with the Duke of Edinburgh, had received the freedom of Belfast at the City Hall, and their imminent arrival at the great Seaplane Works on Queen's Island had everyone on tip-toe.

Accompanied by His Excellency the Governor of Northern Ireland, Their Royal Highnesses drove up to the stores despatch-bay entrance, where the Princess accepted a bouquet from Miss Muriel Hambrook, daughter of the firm's sales controller. His Excellency the Governor then presented Mr. E. D. A. Herbert, the chairman, to Their Royal Highnesses, and a tour of the assembly shops began, the Royal visitors pausing intermittently for Short and Harland and Tasman personnel—whose names appear at the conclusion of this account—to be presented.

Mr. E. D. A. Herbert, chairman, Short Bros. and Harland Ltd., speaks before requesting Princess Elizabeth, seen with the Duke of Edinburgh, to perform the naming ceremony.

The first aircraft on the Royal route were Sturgeons, for target-towing and target - simulating duties with the Royal Navy. Next a group of four Sealand amphibians—including three for British West Indian Airways—came into view and, looming beyond, the towering hull of the third Tasman Solent. Members of the Tasman staff having been presented, the Royal party continued through to the 300-foot bay, where a rare spectacle was offered. On both sides the gangway was flanked by towering flying boats of various types, all bearing the un-

mistakable stamp of Short design. On the left hand was a white R.A.F. Sunderland, a 51-seater Sandringham for A.L.F.A. — the progressive South American line; the B.O.A.C. Solent *Sheerness*, and the Norwegian (D.N.L.) Sandringham, *Polarbjorn*. To the right was an equally impressive array of three Solents and a pair of Sturgeons. Bunting criss-crossed from wing-tip to wing-tip, and from open hatches clusters of heads turned as one to observe the progress of Their Royal Highnesses. Mainplanes, too, served as vantage points. In perspective, the two lines of hulls converged on an open door framing the immaculate craft which was about to receive its name; beyond lay a rust-red aircraft carrier, glimpsed against lush hills and scurrying shower clouds.

The Royal Party having emerged from the main shops, the Duke of Edinburgh inspected combined guards of honour of Sea Cadets and A.T.C., and the party moved to the platform. As the Princess reached the head of the stairway, the Regimental Band of the Royal Ulster Rifles played the National Anthem, and a Yeoman of Signals broke the Royal Standard overhead. Senior Tasman personnel were presented, and Her Royal Highness was escorted to the naming position by Mr. Herbert, who read telegrams from Mr. Drakeford, Minister of Civil Aviation, Australia and the Hon. F. Jones, New Zealand Minister in charge of Air. The latter ran:—

"On the occasion of the naming of the first of the four Solent aircraft for service in the Tasman between Australia and New Zealand, I desire to convey my congratulations to the builders and all the employees of Messrs. Short and Harland who have been engaged in the construction of the aircraft. The name *Aotearoa* has already had a memorable association with New Zealand aviation and I feel confident that *Aotearoa II* and her sister ships will acquit themselves with great satisfaction in the Tasman Air Service. The four Solent aircraft which have been acquired for this route will provide Australia and New Zealand with a fast and modern air service which will prove of the greatest advantage to the people of our two countries. Already throughout the trying years of the war the Short flying boats have proved their worth in service in this part of the world, and I am confident that the Solent will sustain the high reputation of these flying boats. It is a gracious gesture of The Princess Elizabeth to name the first of the Solents, and I join with all of the company at this ceremony in my humble duty to Her Royal Highness."

The pride of the New Zealanders as Her Royal Highness named their magnificent new craft can well be imagined. A bottle of Australian wine served appropriately in the ceremony and lusty cheers proclaimed Ulster's delight. Having inspected the Solent and signed the visitors' book in the headquarters offices, Their Royal Highnesses left for the Harland and Wolff shipyards.

Captain Brownjohn later told us something of *Aotearoa II* and her sister Solents. "Aotearoa," the name by which the Maoris have known New Zealand since they first sighted it—means "Land of the Long White Cloud." The names *Ararangi*, *Aranui* and *Awatere* have been chosen for the other three machines.

Provision is made in the boats for 44 day passengers on the Auckland-Sydney run and plans exist for services to be extended to Wellington and Suva. The payload is 17,000 lb, of which roughly two tons of freight or baggage can be stowed in each of the forward and aft holds. Vickers chairs, adjustable by a push button, have been selected and there are four toilet compartments, with electric-razor points. An innovation is a show case, offering articles for sale. Operational equipment includes a Smith's S.E.P.1 autopilot, G.3 gyro magnetic compass, Bendix radio, and two rest chairs and table for crew relaxation and meals. The steward's galley is unusually large, measuring 12ft × 9ft. There is a special lift to the lower deck and a re-victualling chute for loading provisions direct into the pantry. Detail finish is of a very high order.

The Mk. IV Solents have Bristol Hercules 733 engines of 2,050 take-off horsepower. At a take-off weight of 79,000 lb they have a range of 2,300 statute miles, cruising at 200 m.p.h. at 10,000ft only 900 h.p. per engine. With maximum permissible power the speed is 276 m.p.h. at 3,000ft, and with normal climb power (1,535 h.p. per engine) the rate of climb is 920ft/min. With only three engines operative, a rate of climb of 400ft/min is possible at heights up to 5,000ft. Although the Tasman Solents will normally fly at 3,000-10,000ft, a service ceiling of 18,000ft is attainable. The full-load take-off run is 1,000 yd in 40 sec in temperate climate, and 1,300 yd and 50 sec in the tropics.

Presentations

The following had the honour of being presented to Their Royal Highnesses:—

Mr. John Freeman (Parliamentary Secretary, M. of S.), Sir Arnold Overton (Permanent Secretary, M.C.A.), Air Chief Marshal Sir Frederick Bowhill (chief aeronautical adviser, M.C.A.), Sir Miles Thomas (deputy chairman, B.O.A.C.), Major J. R. McCrindle (managing director, B.O.A.C., external affairs, and director, Tasman Empire Airways, Ltd.), Mr. J. W. Brancker (manager, Eastern Division, B.O.A.C.).

Rear-Admiral M. S. Slattery (managing director, Short Bros. and Harland, Ltd.), Sir Frederick E. Rebbeck (director), Mr. C. P. T. Lipscomb (director), Mr. J. L. Parker (director), Mr. J. S. Baillie (director), Mr. R. E. Harvey (general manager), Mr. Oswald Short, Lady Rebbeck, Mrs. E. D. A. Herbert, Mrs. M. S. Slattery, Mrs. C. P. T. Lipscomb, Mrs. J. L. Parker, Mrs. J. S. Baillie, Mrs. Oswald Short, Mrs. J. R. McCrindle, Mr. E. W. A. Woolmer (secretary, Short Brothers and Harland Ltd.), Mr. T. W. Brooke-Smith (chief test pilot), Mr. W. H. Hambrook (sales controller), Mr. T. W. Whittle (electrical foreman), Mr. A. Armstrong (electrician), Mr. T. Weatherall (electrician), Mr. N. Weatherup (foreman, tool-room), Mr. J. Greenwood (tool-room fitter) and Mr. A. Kennedy (tool-room fitter).

Captain P. Le Coutour (senior aircraft captain, Tasman Empire Airways, Ltd.), First Officer Kilgour, First Officer Bethwaite, Senior Engineer Officer Phillips, Engineer Officer Carlyon, Radio Officer Reid, Flight Steward Chidwick, Engine Inspector Newman, Mr. F. McArdle (senior foreman, Short Bros. and Harland, Ltd.), Mr. J. McGrath (flight engineer), Mr. H. Smith (fitter), Mr. A. F. Hunter (foreman), Mr. R. Beattie (metal worker), Mr. A. Hamill (metal worker), Mr. J. B. Patterson (foreman), Mr. G. Brennan (fitter), Mr. W. Shannon (fitter), Mr. C. J. Keppel (senior representative), Captain K. A. Brownjohn (operations manager, Tasman Empire Airways, Ltd.), Captain C. Griffiths (flight commander).

ADASTRAL PLAYERS PERFORM

ANOTHER success was added to the long list of productions credited to the Adastral Players, the dramatic society of the Air Ministry and Ministry of Civil Aviation, when they presented *Trelawny of the "Wells"* at the Scala Theatre, London, last week. An expensive production with a cast of 23, and necessitating four different sets, it was beautifully dressed in a variety of charming Victorian costumes.

Mr. William Kendall produced the play smoothly and efficiently, and, although it was inclined to drag at times, alleviation was provided by the vivacious and energetic playing of Miss Doreen Harnor in the part of Avonia Bunn. Mr. Frank Barnard, who played Sir William Gower, also deserves mention.

Music during the intervals was provided by the Central Band of the Royal Air Force. The orchestra, conducted by W/C. A. E. Sims, Organizing Director of Music, R.A.F., led into the commencement of each act in a most effective way.

"SAMMY" DAVIS TELLS HIS STORY

FEW who know the fascination of flying fail to respond to the different yet equally exhilarating aura which surrounds high-speed motoring, and to all such enthusiasts the next best thing to personal experience is to hear or read of the experiences of others. When the "other" happens to be both an expert racing driver and a first-rate *raconteur* the listener's or reader's pleasure is assured.

Nobody who has taken an interest in motoring sport during the last twenty-five years needs any introduction to one who exactly fills the above description—S. C. H. Davis, Sports Editor of *The Autocar*. In a new book, *A Racing Motorist*,* he tells the story of his experiences from the time when, soon after the first world war, he started competition driving.

It is the sort of book which, once picked up, must inevitably bring the reader accusations of unsociability from family and friends. Many illustrations add to the interest.

** Published at 10s 6d by Iliffe and Sons, Ltd., Dorset House, Stamford Street, London, S.E.1.*

HERE AND THERE

Russia, No—

IT is reported that, due to Soviet unwillingness to allow balloons over Russian territory, competition for the Gordon Bennett Cup has been cancelled. This first post-war revival of the classic balloon race was to have started at Brussels next September.

—Chelsea, Yes

AS a final event in Chelsea Week, M. Charles Dollfus ascended in his balloon from the Duke of York's Headquarters last Saturday evening, accompanied by Mr. Charles Gardner, the B.B.C. air correspondent. The balloon was airborne for over an hour and landed between North Romford and Havering, Essex. It was M. Dollfus's 288th ascent.

Filton Developments

IN his speech at the annual general meeting of the Bristol Aeroplane Company, the chairman, Sir William G. Verdon Smith, disclosed that the Bristol 175 airliner has been extensively redesigned to permit installation of Proteus turboprops in place of Centaurus piston engines. He also revealed that both the aircraft and engine divisions of the company will be concerned with the development of guided weapons—a new project, undertaken on behalf of the Ministry of Supply. Details of the programme remain confidential.

JET FIGHTER-BOMBER: Making a remarkably steep climb-away, a Republic F-84 Thunderjet of the U.S. Air Force's 20th Fighter Wing is seen after unloosing a 100 lb practice missile during a skip-bombing run. The occasion was the U.S.A.F. Gunnery Meet, held at Nevada recently to develop fighter-bomber training and operational technique.

Stratojet Accident

A TEST pilot of the Boeing Aircraft Company, E. Scott Osler, was killed on May 12th by a blow from the partially dislodged canopy of the Boeing XB-47 Stratojet jet bomber which he was flying. The co-pilot was uninjured and landed the aircraft safely, Mr. Osler who was 41, was the co-pilot of the Stratojet when it made its first flight.

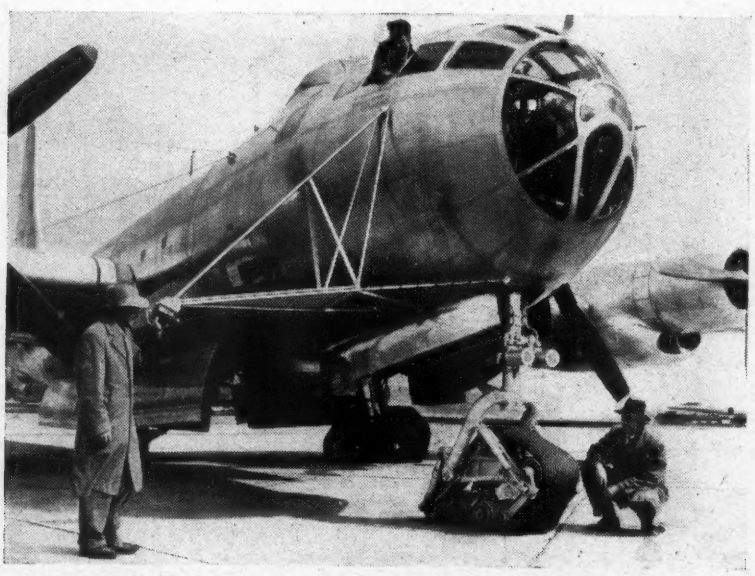
History in Reverse

CARRYING some 35 American Pressmen, *Clipper Mayflower*, the third P.A.W.A. Stratocruiser to visit this country, landed at London Airport last Saturday, May 28th. On the following day it flew to Frankfurt, returning to Heathrow on Monday. The *Mayflower* is equipped for the special weekly "President" service between New York and London referred to on p. 658.

Pressing on Regardless

DESPITE Russian notification that there would be A.A. practice up to 32,000ft at a point half-way along the Berlin-Bueckeburg Corridor, British and American aircraft on the Air Lift maintained their normal courses over last week-end. No firing was reported.

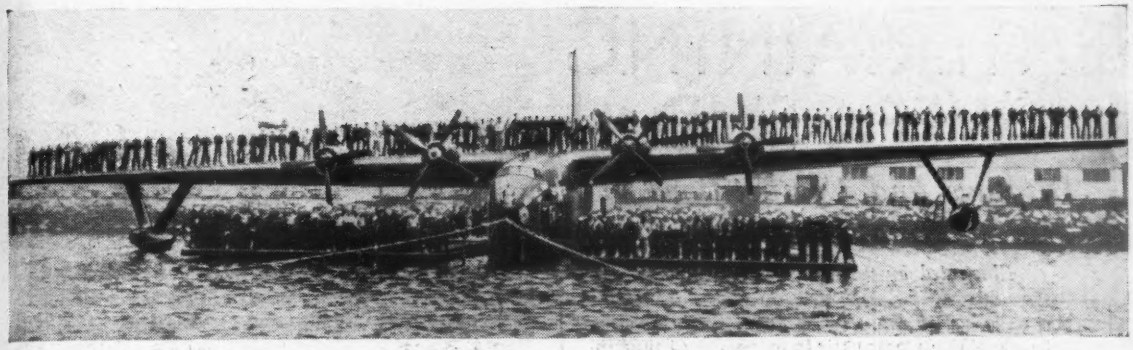
JUST REWARD: G/C. John Cunningham, chief test pilot of the de Havilland Aircraft Company, with the Britannia Trophy which, as reported last week, he received in recognition of his achievement in gaining the height record for Great Britain (he reached a height of 59,446ft in a special Ghost-Vampire). Concurrently, S/L. John Derry received the Seagrave Memorial Trophy and the Gold Medal of the R.Ae.C., and Mr. Alan Bristow the Club's Silver Medal.



ITS OWN AIRFIELD: So far the largest aircraft to be equipped with tractor-type undercarriage, this 164,000 lb Boeing B-50 recently began taxi-tests. The endless rubber and steel wire belt permits operation from rough and improvised runways. A recording camera is carried on the horizontal nose-mounted tripod.

The Quick Way Round

ONE of the longest business tours, entirely by air, ever undertaken is being made by the Chinese manager of a Hong Kong factory, Mr. S. C. Tsang. He left Hong Kong by B.O.A.C. during April and arrived in England for the British Industries Fair. On return to



ROOM INSIDE: No fewer than 301 passengers and a crew of seven are seen on, and below, the wings of the U.S. Navy's flying boat "Marshall Mars." The photograph was taken just before they entered the aircraft for the 500-mile flight from Alameda to San Diego on May 19th—the first occasion on which a passengers-carried figure has exceeded 300.

HERE AND THERE

Hong Kong in October, he expects to have flown 40,000 miles, the greater part by B.O.A.C., and to have visited 20 countries in Europe, Africa, the Middle and Far East and the Indian continent.

Shaggy-Bear Story

A PLEASANT, if slightly incredible, tale of U.S. Air Force wartime operations in the China-Burma-India area is told by United Aircraft Corporation in *The Beehive*. It seems that pilots in this theatre became accustomed to the practice of uncomfortably close formating by friendly patrolling fighters for positive identification. One such pilot, whose co-driver was asleep (illegally) on the cabin floor, spotted in the distance a Thunderbolt approaching for the usual "cockpit check."

Switching on his automatic pilot, he dashed to the rear of his Dakota and seized his pet Himalayan bear, also asleep. After strapping the creature into his own seat, the pilot vanished into the cargo compartment. The amazement of the Thunderbolt pilot, and the reaction to his report at base, had an immediate result. Suffering from "extreme combat fatigue," the fighter pilot was given swift return passage to the U.S.A.

Meteor Deliveries

A CONTRACT with the Danish Government for the supply of twenty Gloster Meteor 4s to the Danish Air Force has already been announced. Holland is to receive 34 Mk. 4s and 7 Mk. 7s; Belgium, 48 Mk. 4s and 3 Mk. 7s; and Denmark, 20 Mk. 4s. Fokker holds a licence to build Meteors in Holland.

Helicopter-lift Mishap

AFTER a successful beginning, the charter of a B.E.A. Sikorsky S-51 helicopter—one of the American-built machines—to transport repair materials to the Croesor Dam in Merionethshire ended last Tuesday in a mishap. Flown by Mr. D. H. Bryon, the helicopter had already lifted a total of between four and five tons of cement bags and heavy machinery from the valley floor 500ft below. The loads were slung in an electrically jettisonable net below the aircraft. After about 20 trips an engine stoppage occurred when the helicopter was hovering some 50-60ft above the narrow rock shelf which formed the alighting-ground alongside the dam. Mr. Bryon jettisoned his load and almost succeeded in pancaking on the shelf; he missed with one wheel, however, and the helicopter slid some 20ft down the mountainside, being extensively damaged in the process but leaving the pilot unhurt. At the time of going to press no decision has been made as to whether the experiment will be resumed.

ENQUIRE WITHIN: The air-touring department of the R.Ae.C. at Londonderry House, where up-to-date information is available to ease the way of the pilot planning a trip abroad for business or pleasure.

News in Brief

RECENT activities by Russian aircraft in Germany include a formation fly-past of Stormoviks near Gatow airfield, and fighter exercises in the Air Lift corridors, which were the subject of a Western protest.

* * *

The Suffolk Iron Foundry (1920), Ltd., specialists in welding rods and other welding accessories, have appointed Mr. A. Gilliard as their representative in Cornwall, Devon, Somerset and Wiltshire.

* * *

Included in the June lecture programme at the Science Museum, South Kensington, London, S.W.7, are "Historical Aircraft to 1903" (June 2nd and 11th), and "Gliding and Soaring Flight" (June 3rd, 18th and 27th). Lectures begin at 15.15 hours.

* * *

Mr. E. D. Smith, who, until recently, was assistant to W/C. "Bats" Page, the sales manager of Airwork, Ltd., has now joined Airtech, Ltd., as head of its sales department, and will have his office at Thame Airfield, Haddenham. He succeeds Lt.-Cdr. P. Godfrey.

* * *

The Australian Navy Minister has announced that the Commonwealth's second carrier, H.M.A.S. *Melbourne*, will not be completed for two to three years. Its sister ship, the *Sydney*, received an enthusiastic reception when it arrived in Australia recently.

* * *

Recently appointed to Aviation Developments, Ltd., as senior (aircraft) sales engineer, Mr. B. J. Stephens will be responsible for the firm's liaison with the industry in respect of the Chobert riveting system and the new Avdel rivet.

* * *

Lately head of the flight department of the College of Aeronautics at Cranfield, G/C. R. C. Hockey, D.S.O., D.F.C., has been appointed aviation divisional engineer to Smiths Aircraft Instruments, Ltd. His duties will be at the Cheltenham factory, where the Company's aviation instruments and equipment are made.

ENTERTAINING WEEK-END

Displays and Competitions at Three Airfields

Illustrated by "Flight" photographs.

LAST week-end the British aeronautical calendar reached a busy level which looks likely to be maintained throughout the season. Pilots who support these week-end affairs had a choice of two in the Midlands—one incorporating an important race—and another in the South, and in all three cases keen public interest was evident. Accounts of these events follow in these pages.

WOLVERHAMPTON and the GOODYEAR TROPHY RACE

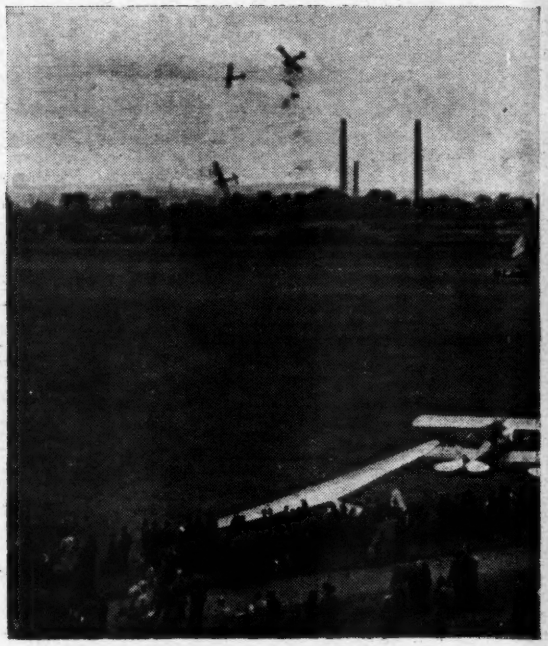
IT is no longer a simple matter to organize and carry through a successful and enjoyable air display, even in comparison with other post-war seasons. There are fewer new aircraft to demonstrate, people are more critical (most stunts and aerobatics have been done before) and the Services and manufacturers are no longer able to co-operate to the former extent. Last Saturday, however, as would be expected of one of the most active and enterprising British clubs, Wolverhampton surmounted these difficulties and provided a most entertaining afternoon. Most fortunately the threatening weather of the early morning quickly improved, and a sunny day with a sky part-covered with towering cumulus cloud developed. There were over fifty visiting aircraft, some four thousand spectators paid for admission, and perhaps another two thousand infiltrated Aberdonian-wise.

The flying programme was well balanced and excellently organized, and there were events to please all tastes.

During the morning heats were run off for the Goodyear Trophy Race instigated by A. Cdre. J. Oliver, of the Goodyear Company. The Company's factory is nearby, and the club benefits much from its support and presence. The Goodyear Trophy Race in America, incidentally, is an important feature of the U.S. National Air Races. This year, the second on which the British Goodyear Trophy has been run, the prize money had been increased to £100, £50 and £25 respectively for the first three in the final. Heat winners also received £5 and there was a £10 special prize for the first Goodyear-equipped aircraft to finish.

In the original race, 17 aircraft took part; this year there were 32 entries, of which 20 actually competed.

The first heat provided the more exciting finish of the two,

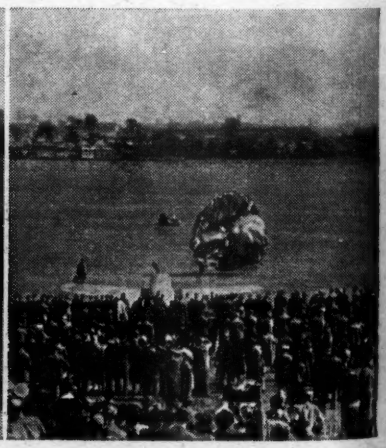


Austers fight for position round the pylon at Wolverhampton.

Place	Racing No.	Pilot	Club	Aircraft	Speed (m.p.h.)
		FIRST HEAT			
1	17	L. E. T. Barley	W'hampton	Auster J. 1	113½
2	26	G. Reid-Walker	,,	Piper PA-12	109½
3	11	G. A. Bickley	,,	Auster V	116½
4	7	S. Robinson	,,	Hawk Major	133½
5	10	D. A. Ray	,,	Auster V	116½
6	4	B. F. Francis	—	Auster J.4	109½
7	23	D. Everall	W'hampton	Auster J.1	133½
8	12	E. R. Pyatt	,,	Proctor IV	147½
		SECOND HEAT			
1	28	R. L. Porteous	—	Auster	105
2	15	D. McCaskill	W'hampton	Auster V	118
3	3	A. G. Lockley	,,	Auster V	116½
4	5	J. H. Parkin	—	Auster J.1	113
5	19	A. J. Penzer	Midland	Auster D	110
6	8	C. G. Alington	—	Sparrow Hawk	163
7	6	J. N. Somers	—	Gemini	150½
8	24	M. J. Edwardes	Hereford	Auster J.4	109½

and many people were sorry to see the Comper Swift, Chrislea Ace and all the Hawk trainers (Magister-type) eliminated. The first eight in each heat qualified for the final flown in the late afternoon. Results were as shown above.

Thus the speed difference between slowest and fastest aircraft was 58 m.p.h.



(Left) Appearing for the first time in public, the Python-Lanc flying test-bed, on a routine flight from Bitteswell, was impressively handled by S/L. Price-Owen. (Right) Major Willans displayed exceptionally fine judgment on his demonstration parachute jump.

Entertaining Week-end . .

The race is run over three laps of a 21¼-mile course, turning points being Wolverhampton Airport, Pillarton Hall estate (6½ miles), Wheaton Aston airfield (6¼ miles), returning to Wolverhampton (8½ miles).

The final provided some fine duels and it seemed that S/L. Porteous' Auster Arrow started favourite with Somers' Gipsy-Major-engined Gemini rather lower on the list than expected because of its heat placing at No. 7. The handicappers did very well indeed, and no one could have foreseen the improvement in the Piper Super Cruiser's time for the final, which enabled it to win by several seconds. There was little doubt about first place after the first lap and none after the second, but great excitement centred around numbers 2 and 3. In fact, Porteous just got home second a few lengths ahead of the bunch, but the next half-dozen places were as hard to judge as if a swarm of locusts were passing the post. One of the Auster Vs, flown by McCaskill, in fact, made third place; Somers, flying very fast and low in the silver Gemini, swept past several others in the last few hundred yards to finish fourth.

Both the Piper and the Arrow had looked to be going very well indeed, and the last-named in particular put up a remarkably good speed for its power and size. Somers' turning was especially admired, and his take-off and first turn were exemplary. The Auster Vs came round sounding like a bunch of young Harvards. Both Sparrow Hawk and Proctor went well but simply lacked the necessary speed. The Piper, Auster V and Hawk Major carried passengers.

FINAL

Place	Racing No.	Pilot	Aircraft	Inc. on heat speed	Speed (m.p.h.)
1	26	G. Reid-Walker	Piper PA-12	+5½	115
2	28	R. L. Porteous	Auster Arrow	+1	106
3	15	D. McCaskill	Auster V	+1¼	119½
4	6	J. N. Somers	Gemini	+4¼	155

In 5th place was number 17 and the remainder were as follows:—6th, 7; 7th, 11; 8th, 5; 9th, 23; 10th, 3; 11th, 10; 12th, 24; 13th, 8; 14th, 19; 15th, 4; 16th, 12.

One heard that the secret of Reid-Walker's success was in part due to a special air intake, cooled to reduce induction temperature and so increase volumetric efficiency.

Mrs. Oliver, wife of the Club president, presented the Trophy, the winners receiving also a replica and cheques.

During the afternoon Service events included Wolverhampton V.R. Tigers in formation, together with an aerobatic display from the same R.F.S. There was also some polished formation flying by three Vampire Is from No. 605 (County of Warwick) Squadron (Honiley), a truly excellent exhibition of aerobatics in a Vampire 3 by F/L. A. A. H. Scott, D.F.M., from Shawbury, and some very nice formation and individual shoot-ups by Seafires from the R.N.V.R. unit at Bramcote.

Other interesting events were a demonstration of the Balliol T.2 (Merlin engine) by Mr. A. E. Gunn, Boulton Paul test pilot, and some low and fast transits followed by a most impressive zoom by Messrs. Price-Owen and Starkey in the Python-Lancaster. Incidentally, Mr. Gunn returned to home ground when, recently, he joined Boulton-Paul Aircraft, Ltd., for he had received his early instruction at Wolverhampton.

Mr. Reid-Walker receives the Goodyear Trophy (a silver seagull) and replica from Mrs. Oliver.

Variety was provided by a pleasing sailplane show by Charles Wingfield, Gold "C" holder, flying in an Eon Olympia, by Major T. W. Willans, who executed a remarkably well-judged short-delay parachute drop from the wing of a Tiger, and by S/L. R. L. Porteous, who aerobatted both his wife's M.18 and the Goodyear "wobble-wheel" Auster before demonstrating the astonishing qualities of the latter's self-aligning landing gear.

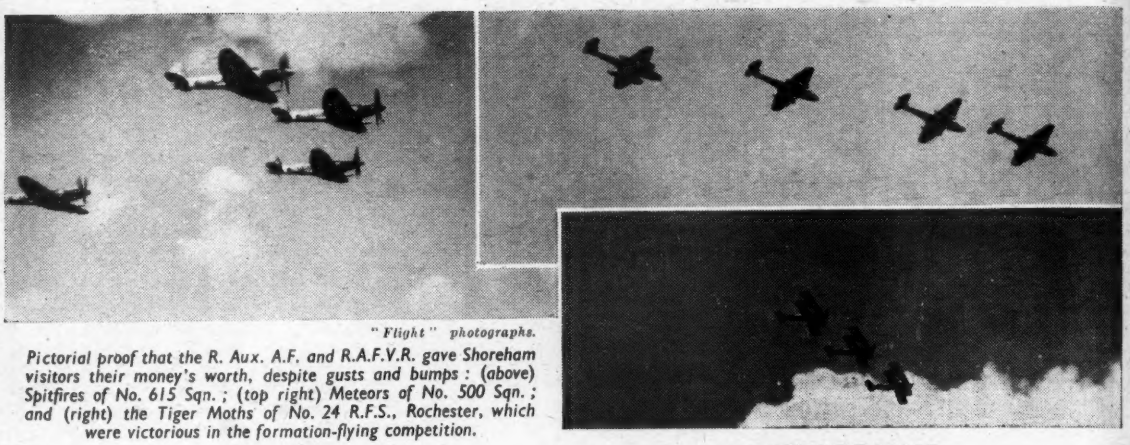
Finally—for space does not permit us to enlarge further on the general excellence of events—mention must be made of Event 10, "Wait and See." To everyone's delight an apparently unoccupied Hawk Trainer taxied about, eventually took off, flew round, and finally arrived back (it was no landing) on the airfield—guided, so it seemed, solely by instructions over the loudspeaker system. Its two cockpits looked just as empty at the end of it fly-round, and this novel display by "a secret radio-controlled aircraft" was left unexplained.

Joe Taylor, Shell-Mex and B.P. Aviation Manager, and a familiar figure at flying meetings, received a handsome tankard as winner of the arrival competition in his Proctor.

RATCLIFFE

ON Sunday a second Midland flying display, organized by the Leicestershire Aero Club at Ratcliffe, attracted a large crowd from neighbouring cities and towns, together with a fair number of the air visitors. Several who had been present at Wolverhampton on the previous day flew over to Ratcliffe to complete their air week-end.

One of the events at Ratcliffe which pleased the spectators most was the demonstration of the Goodyear "wobble-wheel" Auster Autocrat by S/L. Porteous, the Auster Aircraft Company's chief test pilot.



"Flight" photographs.

Pictorial proof that the R. Aux. A.F. and R.A.F.V.R. gave Shoreham visitors their money's worth, despite gusts and bumps: (above) Spitfires of No. 615 Sqn.; (top right) Meteors of No. 500 Sqn.; and (right) the Tiger Moths of No. 24 R.F.S., Rochester, which were victorious in the formation-flying competition.

Entertaining Week-end . . . . .

In addition to the display, the second competition for the Ragosine Trophy was run off. This may be described as a practical exercise in navigation and airmanship, and was necessarily of little interest to anyone except the competitors—more than one of whom, incidentally, expressed a regret that the rules require the pilot to fly solo. The competing Austers take-off individually (using Ragosine oil, of course) at set intervals, after having a fixed time to study (unaided) the clues and briefing given to them. They are then required to fly at exact speeds to the various points indicated and to make two spot landings *en route*, again as briefed. The winner is the pilot who has lost the least number of marks on arrival back at the nearby Rearsby airfield. Deductions are made from the experience bonus of 5 marks and for incorrect ground speed (10), incorrect observation of symbols (2) and landings (6). Of 32 entries received, 27 Austers started and 20 qualified for marking. The trophy, a silver bowl, was presented to the winner, Mr. Ewans, by Mrs. F. Bates, wife of the managing director of Auster Aircraft, Ltd.

RESULT

1. J. R. Ewans, Brough Flying Club	7½ Marks
2. D. R. Woolley, Brough Flying Club	8 Marks
3. B. F. Francis (Edgware private owner)	8½ Marks

Congratulations are due to Mr. Ewans, who was also the winner last year.

The flying display included some good events, and the completely blocked main road beside the airfield was a tribute to the fine formation flying by Spitfires from 504 (City of Nottingham) Squadron, R.Aux.A.F., led by S/L. J. M. Birkin, D.S.O., D.F.C., A.F.C., which opened the programme. V.R. pilots from Desford next formated very well in the turbulent air, and succeeded, without apparent difficulty, in remaining tied together. It is said that they hope soon to demonstrate loops while tied, and that this may follow after more practice.

Seafires from 1833 R.N.V.R. Squadron introduced Bramcote pilots to their second week-end display, and their formation and individual shoot-ups were obviously much appreciated.

The programme continued with a parachute jump by Major Willans—cleverly judged in a strong wind, to land in the small airfield—with sailplane aerobatics, and with another of S/L. Porteous' Auster displays, which included aerobatics followed by crazy flying, taxying and landing, all with the aid of the castering Goodyear undercarriage.

Another event from Desford was an aerobatic display by "Bats" Bullmore, a veteran instructor and demonstration pilot, and it was followed by two excellent demonstrations of a Percival Proctor by Mr. Peter Hill of Field Aircraft Services, and of a Prentice by F/O. A. B. S. Greenfield from R.A.F. station Cottesmore. The Prentice was put through some of the cleanest aerobatics and straightest rolls we have witnessed by this type. Before joy-riding commenced a Drone buzzed round, to the amusement of the crowd.

To add to the entertainment a small static show containing, among other exhibits, a Metrovick turbojet and components, had been arranged, and the Leicestershire Model Aero Club flew control-line models. A parade with band and drums by No. 1 (F) Squadron, A.T.C., attracted well-deserved admiration.

SHOREHAM

SUN and a salty breeze compensated for some deficiency of spectacle in the Sussex R.A.F. At Home at Shoreham Airport on Sunday.

The arrival, in his Avro 19, of Air Marshal Sir Alan Lees, A.O.C.-in-C. Reserve Command, was followed by some workmanlike formation flying by four Spitfires of No. 615 Squadron, R.Aux.A.F.—bumps notwithstanding—rounded off by a dashing beat-up and individual aerobatics. Number 2604 Sqn., R.Aux.A.F. Rgt., improved the shining hour, and their gun-laying, by drawing a Bofors bead on the diving fighters.

Had events of the same interest been presented at the same speed the occasion would have been a thorough, instead of a qualified, success; but no fewer than four model-aircraft events were interspersed throughout the remainder of the programme and, because of the inability of many visitors to see the models or to appreciate the niceties of their behaviour, a certain amount of spectatorial unrest was discernible. The models—some supplied by Wilmot Mansour and Co., Ltd., others by clubs from Kenley and Horsham—did, in fact, perform remarkably well.

S/L. Marsh did much to save the day by twice demonstrating the amazing little Skeeter helicopter. Although this machine has only ten hours' flying behind it, Marsh handles it like a circus pony of many years' training. In face of a buffeting wind he repeated his Sywell performance of the previous week-end by unhooking a ring from a post and, to everyone's delight, replacing it. By way of an encore he followed with another party trick—that of landing on a lorry.

Tiger Moths figured in competition formation flying by flights from No. 24 Reserve Flying School, Rochester, and No. 22 R.F.S., Cambridge; Reserve Flying School at Rochester and the Cambridge University Air Squadron; individual aerobatics by S/L. E. G. R. Downey, of the Cambridge University Squadron; the evergreen instructor-and-pupil act, and the "Colonel Crackshot" slapstick. The Cambridge and Rochester Tigers put up a first-class show under exasperatingly gusty and bumpy conditions. Rochester—in the persons of F/O. K. W. Evans, D.F.C., F/O. J. Corbin and F/O. J. Horrocks—triumphed; their performance was as beautifully disciplined as the display of drill by W.R.A.F. from the Hawkinge Depot.

Rightly, at such a display, the "faithful Annies" had a part; three of these navigational trainers vied worthily with the Tiger Moths in station-keeping.

Led by A.T.C. massed bands, the following squadrons marched past Sir Alan Lees in fine style: 45 (Worthing), 54 (Eastbourne), 176 (Hove), 225 (Brighton), 226 (Brighton), 304 (Hastings), 461 (Chichester), 796 (Hastings Grammar School), 1015 (Horsham), 1218 (Newhaven), 1343 (East Grinstead), 1440 (Shoreham) and 1810 (Horley). Two tiny "civvies"—evidently A.T.C. aspirants—decided to join the column and no one could take exception to their innocent, if undisciplined, enthusiasm. What was, to our mind, a cause for real regret was that the sharpshooting Tiger Moth should have been careering low over the Cadets on what they rightly considered a memorable and dignified occasion, and that the martial music should have to compete with unintentionally Tannoyed giggles.

Happily the afternoon ended on the high note on which it had opened—with excellent formation flying and a strafe by four Meteor 3s of No. 500 Sqn., R.Aux.A.F. The lone aerobat, who concluded "500's" worthy contribution, is especially to be congratulated.

The Instrument-rating Test

A Candidate's Experience : Helpful Attitude of M.C.A. Examiners

IN the curriculum of the Ministry of Civil Aviation the new British Instrument Rating is at least one examination which is 100 per cent practical and useful and in which the syllabus covers only those points which are of vital everyday use to the commercial pilot. An account of a candidate's experience may be of some interest to others.

Briefly, the syllabus is divided into five sections and failure in any one of them may mean a further examination, though only in that section. The five can be listed as follows:—

(1) General instrument work.
(2) Limited panel.
(1) Asymmetric power.
(4) Q.D.M. approach, let-down.
(5) S.B.A., I.L.S., Babs or Radio Range approach and let-down (the aid used to be specified by the candidate).

On reporting to Gatwick one is immediately engaged in a friendly chat with one's examiner, who provides a very adequate pre-flight briefing with emphasis on the theme "Don't worry if you make a silly mistake, we expect you to be suffering from examination-itis." Stress is also laid on the fact that the tolerances specified in M.C.A. Pamphlet 56* are treated only as a guide and failure to fly within these limits over some brief period in the test will not automatically disqualify a candidate.

By CAPT. D. A. BRICE, A.R.Ae.S.

Due note is taken of the examinee's past experience on the Consul or Anson and, if necessary, a brief familiarization flight can be carried out before the test. In this connection it should be mentioned that pre-flight checks which have no part in the test are not a subject for examination.

After this briefing—which also serves as a means of familiarizing examiner with candidate and vice-versa—both repair to the aircraft, which is suitably equipped with amber screens and the necessary radio equipment. As soon as the machine is approached the test is commenced and one is expected to check such items as the pitot-head heater, radio aerials for security and any other items which have a direct bearing on the safety of flight under I.F.R. conditions. Similar checks are carried out inside the aircraft both before and after starting engines and great importance is attached to them. Radio equipment must also be tested, even though, in the case of blind-approach aids, no complementary aid equipment exists at Gatwick.

Flight Trials

The Rating test does not call for a "blind" take-off but it does require the candidate to fly on instruments as soon as a height of 100ft is attained. The candidate takes-off with helmet and blue goggles in position, but with a clear-vision panel in the amber screens. At 100ft this panel is closed, so one is well advised to be on instruments before this moment. Throughout the test all aircraft, engine and radio controls have to be operated by the candidate, although information as to power settings, speeds and rates of descent or climb is given by the examiner.

Having obtained the necessary control instructions by R/T the pupil takes-off and is examined on his general instrument-flying during the climb and in level flight. This part includes the manœuvre of reducing speed to 85 m.p.h. and returning to the recommended cruising speed of 140 m.p.h. without alteration of height or heading.

Next comes "limited panel" work, in the writer's opinion the section most likely to give trouble to the average pilot. In this test the artificial horizon and the directional gyro are screened, which means that all turns have to be made with the aid of a clock, since normal compass errors do not permit a sufficiently rapid indication of one's course to be obtained. A standard Rate 1 turn requires a change of heading of three degrees per second, i.e., a 90-degree turn requires an elapsed time of 30 seconds. The rate of turn is measured by a "needle-and-ball" instrument and it is advisable to check this rate against a turn over a known time-interval in order to gauge the needle position for a Rate 1 turn.

Having established the "rate" of the instrument one is required to fly straight and level at constant air-speed and then carry out Rate 1 turns on to pre-determined headings. A period of 30 seconds is allowed for the final adjustment on to the required course within ±10 deg. After the successful conclusion of this manœuvre the candidate is required to recover from a sustained 45-deg bank turn and also from a steep descending spiral. In this connection, "recovery" means a return to straight, level flight on any suitable heading.

The final item in this section is an approach to the stall and return to normal flight, particular attention being paid to throttle and stick movements in the initial stages of the recovery.

The sequence of the five tests probably varies with the instructor, but in the writer's case the next test was the S.B.A. let-down. This was attempted at Bovingdon under actual QBI conditions, but, due to traffic density and a V.H.F. snag, the let-down there had to be abandoned and the test carried out at Dunsfold. Pilots who have had V.H.F. troubles due to continual interference from other aircraft and ground stations will be relieved to hear that the M.C.A. has a special frequency for these tests which is relatively uninterrupted by extraneous noises.

Criticism

One of two possible criticisms of the rating examination concerns the S.B.A. section. At the moment, the minimum height required for the final approach over the inner marker is 500ft. In view of the fact that S.B.A. is essentially an "approach-to-land" aid this seems unnecessarily high and it would be preferable if the approach was continued down to 150ft. This would not only require a somewhat higher standard of instrument flying but would introduce a psychological effect akin to that which might be expected under conditions of a bad-weather S.B.A. let-down.

Apart from this, one had no fault to find with the S.B.A. test. We were passed a homing QDM by the examiner and given complete freedom in our selection of method of homing on to the beam; apart from the R/T procedure (which would normally be done by a co-pilot, but which in the examination had to be done by the candidate) the S.B.A. test was straightforward.

At 500ft we were given instructions to overshoot, and here, again, particular attention was paid to throttle opening—it should be fully open—and other cockpit routine to do with landing gear and flaps. Candidates are, of course, required to maintain the S.B.A. QDM up to the required height and make necessary power adjustments to normal power after the initial climb.

On the return home we launched into the "asymmetric power" test, which was initiated when the aircraft was climbing at maximum power at the single-engine-safety speed of 85 m.p.h. One throttle was pulled back smartly and, after the initial corrections had been made, the "dud" engine was restored to partial power to improve the single-engine characteristics. Great attention was paid to yaw control and a maximum initial deviation of 15 deg was allowed. In the writer's opinion it is a mistake to emphasize this point, since, under actual conditions of engine failure as opposed to the simulated, the maintaining of a steady heading is not nearly so important as is

(*Concluded on p. 646*)

* "*Instrument rating for Pilots*," price 6d., H.M. Stationery Office.

"OPEN DAY" AT THE N.P.L.

A Survey of Some Current Aeronautical Investigations

Illustrated by "Flight" Photographs

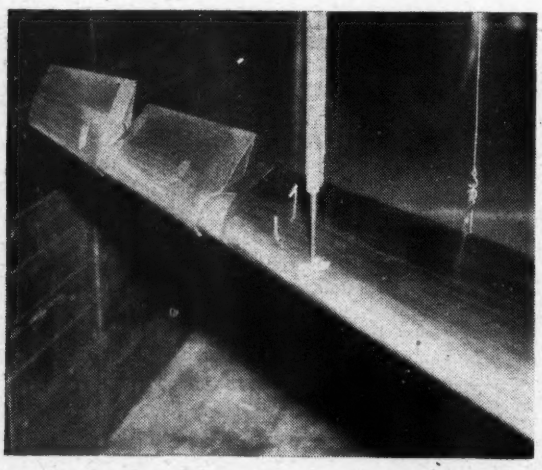
FOUNDED in 1900 in Bushey House, an old Royal residence granted by the Crown for the purpose, the National Physical Laboratory is the second of the world's standardizing laboratories, the Physikalisch Technische Reichsanstalt in Berlin having been founded in 1887 and the National Bureau of Standards in Washington initiated in 1901.

The laboratory was founded to bring scientific knowledge to bear practically on everyday industrial and commercial life, to break down the barrier between theory and practice and to effect a union between science and commerce. This is the prime duty of the Department of Scientific and Industrial Research, of which the laboratory is now part.

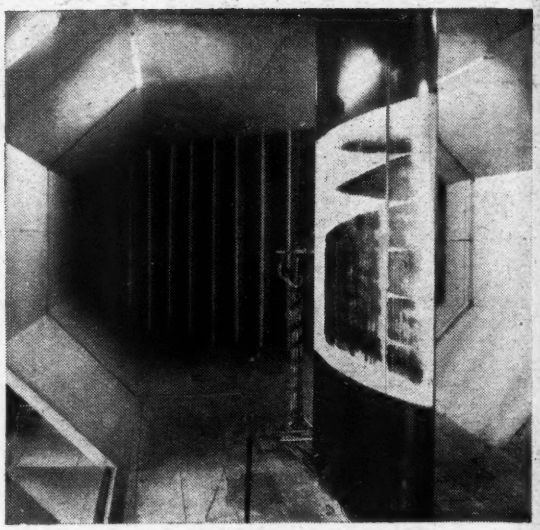
Like others of our great scientific institutions—for example, the Cavendish Laboratory at Cambridge—the N.P.L., year in, year out, quietly and unobtrusively carries on work of the greatest importance to our industrial life. Once a year, however, the laboratory is thrown open to representatives of industrial organizations, members of University staffs and of Government departments. And it is as a result of this annual occasion that the "outside world" is given the opportunity to learn something of the current subjects on which the laboratory is working and the way in which the various problems are being tackled.

Since our visit last year, the work done in the various branches of aeronautical interest has been considerably advanced, and this progress is well indicated by some of the experimental work at present being done in the various departments of the Aerodynamics Division.

In the 7ft No. 3 wind tunnel, a model of a delta wing is being used for investigation into the low-speed characteristics of such forms of surface. This study is of particular importance in relation to the take-off and landing approach stages of flight, and also as a preliminary to research into the effects of compressibility on the flow over the aerofoil. In addition to measurement of the forces and moments by means of the six-component balance, both distribution of pressure over a wide range of altitudes and the boundary layer and wake will be explored by means of pitot combs and multiple manometers.



Semi-span model—in the 7ft No. 2 tunnel—of swept-back wing with rotatable-tip control-surfaces of modified Hill-Pterodactyl type.



By application of suction to a slot at 20 per cent chord, the turbulent wake from tiny excrescences on the nose surface can be eliminated and laminar flow re-established. The upper portion of the slot was taped over to show development of the turbulent wake where no suction is applied.

Another problem, not unrelated to those concerned with the delta wing, is the best method of designing the controls for modern tailless aircraft in order to give desirable stability characteristics. For a tailless aircraft with a swept-back wing, the stability in pitch and roll is closely associated with flow over the wing tips, and there is some doubt as to whether the standard form of control will prove generally satisfactory. In the 7ft No. 2 tunnel, tests are being made on a half-scale wing with a cranked tip on which is fitted an alternative type of control similar to that used many years ago by Professor Hill on the early models of the Pterodactyl. This form of control consists of a part of the wing tip capable of being rotated about an axis located at the quarter-chord station. Experiments are also being conducted with a straight-taper swept-back wing with two sizes of control, and the effects will be measured of an alteration of the rotational axis from an alignment at right angles to the airflow to a position inclined rearward at about 45 deg to the airflow.

High-speed Tunnels

The 9in × 3in high-speed tunnel, which was in the final stages of construction during our last visit, is now operating. Experiments can be made in this tunnel both at subsonic speeds and at supersonic speeds up to nearly M=2.0. The tunnel is of induced-flow type in which dry compressed air at a maximum gauge pressure of 25 atmospheres can be injected at roughly atmospheric temperature through an annular slot around the periphery of the tunnel downstream of the working section. The width of the slot may be varied from 0.003in to 0.119in to suit the working conditions, the pressure and temperature of the induced airstream entering the contraction which precedes the working section being roughly atmospheric.

This tunnel is a quarter-scale model of two 3ft × 1ft tunnels which are to be erected at the N.P.L. within the next few years. The experiments already carried out in the 9in × 3in tunnel have confirmed that the design of the 3ft × 1ft tunnels should be satisfactory, and have also included observations on a series of round-nosed aerofoils at supersonic speeds. The experiment demonstrated during our visit showed the flow round a blunt-nosed aerofoil at a speed equivalent to M=1.6. In the adjacent building, installation of a new 18in × 14in supersonic tunnel is now being completed. It is of similar type and speed

"Open Day" at the N.P.L. . . . . .

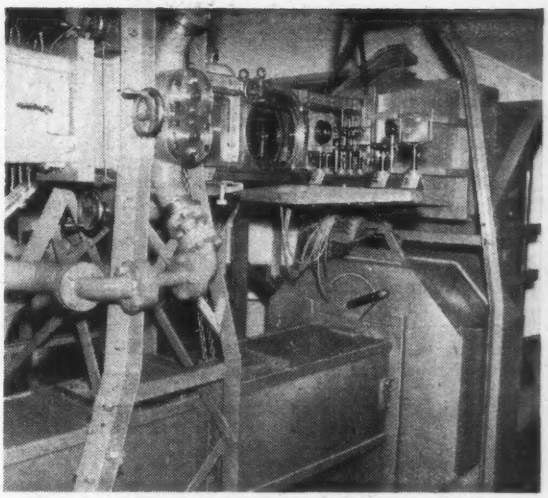
capacity to the 9in × 3in instrument, but can additionally be pressurized to three atmospheres for operation at high Reynolds Numbers.

With the increase both in flight speed and aircraft size in latter years, the effects of vertical gusts have assumed great importance in relation to wing stresses and, by no means secondarily, the comfort of passengers. Exactly what happens when a gust strikes a wing is not as yet very well understood; there is, however, some indirect evidence that the current theory does give results of the right order, but theory has not given a really satisfactory method of computing the growth of downwash behind a wing in that region where a tailplane would be located.

In the non-turbulent wind tunnel at the N.P.L. an attempt is being made to trace the history of the downwash following a very rapid change of incidence of a model wing in the tunnel. To obtain continuous records of the direction of the downwash, two short platinum wires forming a small acute angle are placed in the downwash as nearly symmetrical to the flow as possible; these wires form the adjacent arms of a Wheatstone bridge and can be heated to about 200 deg C by an alternating current. The other arms of the bridge consist of fixed resistances, the values of which are adjusted to give a convenient out-of-balance voltage when the wing is set at its initial inclination to the stream. A spring mechanism enables the wing to be rotated quickly through about 5 deg. During this process, and also for a longer period, as the direction of the downwash changes, the differential cooling effect to which the wires are subjected produces further changes of voltage across the bridge. After amplification, these can be viewed with a cathode ray oscillograph and photographically recorded to furnish details of the directional variation against the time-base.

Suction and Turbulence

Tests of laminar-flow wings and suction aerofoils have long established that very low drag coefficients are obtainable with such designs, always providing that the flow in the boundary layer remains laminar throughout the region of favourable pressure gradient. In actual flight conditions, however, the flow in the boundary layer may well become turbulent owing to dust or insects deposited on the nose of the wing. This leads to the whole purpose of the design being negatived as the drag coefficient then increases to many times its value for laminar flow. Means must therefore be devised to remove the turbulent boundary layer at the earliest moment after its formation.

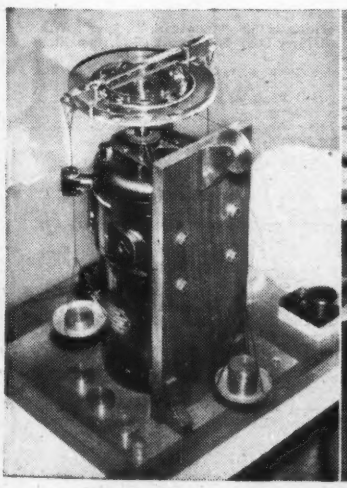


Working section of the 9in x 3in high-speed tunnel, showing part of Schlieren shadowgraph apparatus.

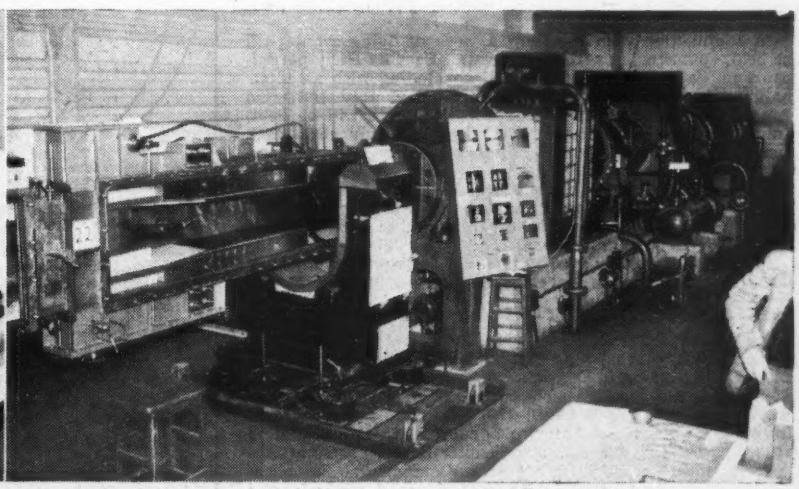
Tests now in progress in the 13ft × 9ft tunnel are concerned with a method whereby the turbulent layer is withdrawn through a spanwise slot at 20 per cent of the chord back from the leading-edge (beyond which dust or insects are unlikely to adhere), laminar flow being re-established downstream of the slot. On the model the dust or insects are represented by small conical and cylindrical excrescences of adjustable height. The method is, of course, equally applicable when the turbulence is due to imperfections of surface finish.

The specimen wing is mounted vertically in the tunnel working section, the spanwise portion under study being coated with a smooth, thin film of china clay. Prior to a test run the china clay surface is sprayed with oil of wintergreen. The latter dries most rapidly in regions of turbulence owing to the better mixing, thus allowing the excrescence wakes to show white in contrast to the still dark, oily surface of the laminar regions.

In the engineering division a method was demonstrated for subjecting complete structures to repeated loads. An aircraft tailplane is vibrated in the plane in which loading



With this simple apparatus, a study can be made of ball action at combinations of thrust and radial load at varying speeds.



The 11in-square supersonic wind tunnel is employed to a considerable extent on ballistics work, although it has also been used to provide basic data on the action of inclined shock-waves upon the wall boundary layer.

"Open Day" at the N.P.L. . . . . .

is to be applied, and the loading results from the inertia of the mass of the structure itself and of extra masses added to simulate other distributions of loading. Static loading may also be applied through tension springs.

The 11in-square 1,500 h.p. supersonic tunnel is the most recently developed instrument in the Engineering Division for continuance of the last 30 years' work on compressible flow and high-speed flight. With this tunnel, work has started on the complex subject of boundary-layer shock-interaction, which is of particular importance in the behaviour of wing/body junctions, supersonic diffusers and flow duct entries. A preliminary investigation of the action of an inclined shock upon the tunnel wall boundary layer has yielded interesting results, indicating that the orthodox conception of boundary layer flow may not apply.

The Engineering Division has long had an interest in ejector action for wind tunnel operation at Mach numbers of less than 2.0, and much pioneer experimental work has been done. Experiments are in progress using two-dimensional models investigating the flow by means of pressure measurements and spark shadowgraphs, and while investigating the development of a particular ejector for the production of low pressures, methods have been devised which may be of wider application in this field of research.

A transparent model illustrating the action of a ball bearing under a combination of thrust and radial load is used to show that the rate of heat generation is dependent on the angle of application of the load. The transparent races facilitate study of the motion of the balls at various angles of application of load in this slow-speed angular-contact bearing. The speed can be varied between rest and 60 r.p.m. whilst, at the same time, the angle of load application can be varied from zero to 90 deg.

THE INSTRUMENT-RATING TEST

(*Concluded from p. 643*)

the checking of air speed, the readjustment of power output and the maintenance of altitude. An involuntary alteration of course is relatively insignificant and, anyway, is probably inevitable after an engine failure on a light twin under I.F.R. conditions. What is far more important is the regaining of the original heading after all the other details have been attended to.

After dealing with the initial circumstances of the engine failure, the candidate is required to fly straight and level at 95 m.p.h. and carry out Rate 1 turns to the right and left, followed by a straight descent, descending turns and then a straight climb. This completes the asymmetric syllabus.

By this time the candidate may be getting tired, since simulated instrument flying with amber screens is more exhausting than is flight under actual instrument conditions. If this should occur he is allowed to rest for a time while the instructor handles the machine. All that remains to be done, then, is the QDM let-down, and here again the procedure is quite normal. Some pilots, however, especially those who normally operate large aircraft with correspondingly large crews, may find a certain amount of difficulty in handling the R/T side as well as the actual flying, especially as the Consul is, by some standards, rather "mushy." Here again no rigid procedures are called for and, provided the candidate can demonstrate his ability to position himself over the airfield on the required heading at the required height in a reasonable period of time his performance will be acceptable. As with the S.B.A. test, the required height before overshoot is 500ft.

That completes the syllabus for the British Instrument Rating. The test, one feels, was fairly conducted and a general attitude of "we want to pass you, not fail you" persisted throughout. Normally the test occupies between two and three hours, and afterwards a debriefing chat covers the whole examination in retrospect, and any strong or weak points in one's I.F. are discussed.

No one at Gatwick attempted to be dogmatic and all conversations were conducted with a frank interest in the candidate's point of view. Realizing that many aspects of instrument flying are open to discussion, the examiners are receptive to new ideas and, if some applicant has a new idea which works, no one will fail him because it has not been done before. Such an attitude might well be commended to *all* bodies connected with the examining of aviation candidates.

HOLLAND'S OPEN-AIR SHOW

AN ambitious programme has been drawn up for an international open-air aviation show to be held under the auspices of the Royal Dutch Aero Club at Ypenburg, Holland, from July 23rd to 31st.

In conjunction with the show a week of flying events will be held, commencing with the arrival of Benelux Rally participants on Saturday, July 23rd, and concluding with an international formation-flying contest on Sunday, July 31st. On July 24th the Andries Blitz Coupe balloon race will be held, July 25th is an aircraft-modellers' day, and July 26th, 27th and 30th will be devoted to gliding, parachuting and "sport-flying" displays respectively.

It is stated that no charges will be made for exhibition space and that no landing or parking fees will be levied. Full details are available from the organizers, 1ste Internationale Luchtvaart Show, Luchthaven, Ypenburg.

Intending exhibitors and visitors will find some information about Ypenburg in the November 18th, 1948, issue of *Flight*.

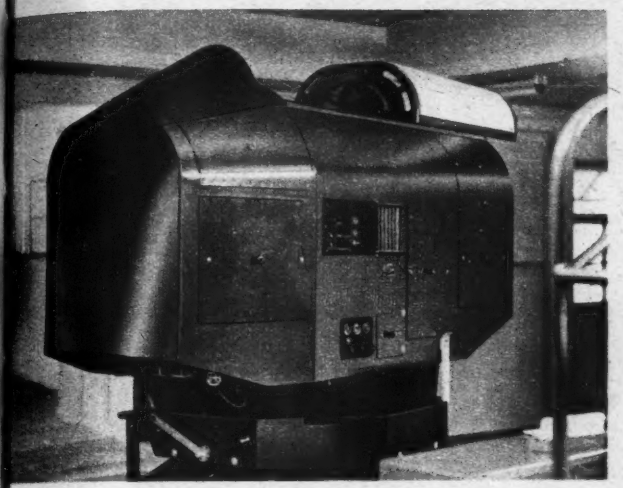
HELICOPTER TEST-PILOT APPOINTMENT

IT is announced that F/L. John Norman Dennis has been appointed rotating-wing test-pilot to the Fairey Aviation Company's Rotorcraft Division, with effect from June 1st.

John Dennis, who is now 28 years of age, joined the R.A.F.V.R. in 1938 and served with Nos. 3 and 139 Squadrons. In 1942 he joined the Autogiro Squadron at Halton, and in 1944, after taking the No. 1 Helicopter School course at Andover, went to the Airborne Forces Experimental Establishment at Beaulieu, Hants, for rotating-wing research and development duty. In 1945 he was posted to R.A.E., Farnborough, as a Service Pilot, and a year later became a civil pilot there. More than 750 hours of his 3,000 hours' flying have been on rotating-wing aircraft.

FORTHCOMING EVENTS

June 4th to 6th.—Bembridge and Sandown Aero Club: Flying Week-end.
June 4th-6th.—Aero Club d'Epernay: Third International Air Rally. (Private invitations.)
June 11th.—Royal Naval Air Station, H.M.S. "Gamecock": King's Birthday Review and Navy Day, Bramcote airfield, Nuneaton, Warwickshire.
June 11th and 12th.—Royal Air Forces Association: Annual Conference, Margate.
June 11th to 17th.—R.A.F. Small Arms Association: The 23rd Annual Championship Meeting.
June 11th.—Darlington and District Aero Club: Air Display, Croft airfield.
June 11th to 13th.—Yorkshire Aeroplane Club: International and Club Invitation Rally.
June 12th to 19th.—Italian International Air Week, Rimini and Venice.
June 16th to July 2nd.—Royal Tournament, Olympia.
June 18th.—R.Ae.S. (Brough): Flying meeting and Cirrus Trophy Competition, Brough.
June 18th.—Parachute Regimental Association: Old Comrades' Day, Aldershot.
June 18th and 19th.—Aero Club de Basse Normandie: Fiers de l'Orne Rally.
June 19th.—Air League of the British Empire (Portsmouth): Garden Party, The Airport, Portsmouth.
June 19th.—Cowes Aero Club: Air Display.
June 22nd to 24th.—Institute of Transport: Congress at Buxton.
June 26th.—Northern Heights Model Flying Club: Gala Day, Hawker airfield, Langley, Bucks.
June 26th to July 3rd.—Aero Club d'Italia: International Air Week, Milan.
July 1st.—R.A.F. Golfing Society: Summer Meeting at Moor Park Club, Herts.
July 2nd.—R.N. Air Station, Lossiemouth: "Open Day" and Flying Display.
July 2nd to 4th.—Royal Aero Club: Private air rally at Deauville. Guests of M. André.
July 2nd to 10th.—Tour de France Aérien.
July 4th to 11th.—Royal Aero Club: Private Air rally to Spain.
July 9th.—Royal Naval Air Station, Culham, Oxford: Air Display.
July 9th.—Redhill Flying Club: Garden Party.
July 16th.—Royal Naval Air Station, Anthorn, Kirkbride, Carlisle: Navy Day.
July 16th and 17th.—Royal Aero Club: Private air rally at La Baule, St. Nazaire. Guests of Mme. André.



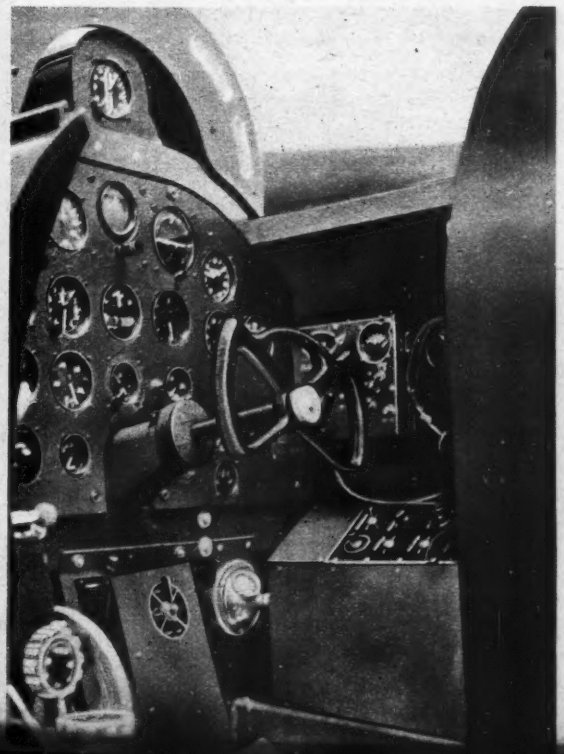
A F.45 Link trainer as used by K.L.M. for route-training captains and first officers of multi-engined aircraft.

Performing the duties of an airport control officer, the instructor controls several machines in a truly realistic manner. "Flight" photograph

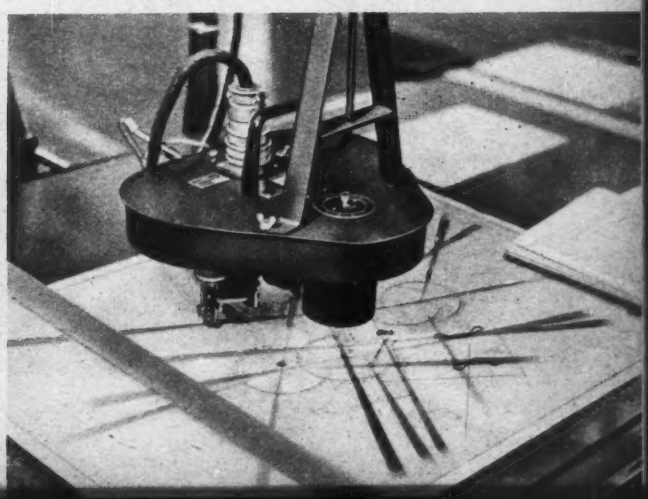
Link to La Guardia

AIRLINE pilots flying into La Guardia Field, New York, are required to pass a special course of instruction on traffic-control procedures for that airport. The courses are conducted at the airport and are attended by pilots of lines operating into it. K.L.M. pilots are exempt, for they are automatically cleared for La Guardia on passing through the company's Link-trainer course at Schiphol. The Dutch airline has always attached great importance to synthetic initial training and constant practice, and it has developed a training establishment in which are simulated an astonishing number of the pitfalls known to exist on the routes. Holding patterns and let-down procedures for every airport in the K.L.M. network are practised, but it is for La Guardia that the most complicated and exacting requirements must be learned; the Dutch pilots in particular experience certain difficulties arising from the use of colloquialisms. The K.L.M. Link section is no mere instrument-flight trainer but one in which all known difficulties are studied and introduced synthetically so that they may be accepted as normal occurrences on the routes. The Link F.45 is equipped with a flying panel as on a large transport aircraft, with trimmers, undercarriage and flap selectors which when operated cause a change in attitude, while characteristic icing effects are reproduced, rough engine-running being indicated audibly and on the instruments. Superimposed on those built-in synthetic hazards is all the radio hubbub and the distraction which occurs around busy international airports. Mr. Martin Henry, the chief Link instructor, and his assistant Mr. E. G. Walton (both are English) have, with their team of instructors, perfected the idiomatic and vocal peculiarities of typical control officers and airline pilots of other nations. They have, in fact, succeeded so well that captains seated in the Link trainer are easily convinced that they are (say) stacked over La Guardia behind aircraft of several nationalities whose pilots are talking on R/T to an American with a high-speed technique.

Inside the cockpit of the F.45 Link, trimming tabs and other refinements not included on the smaller trainers can be seen.



The crab plots the track of an airliner under airfield control. Beams and holding patterns can be seen on the chart. "Flight" photograph



Asymmetrical oddity: Tethered to the control line by its single wing, this projectile is said to have exceeded 150 m.p.h.

(Below) Radio control is successfully used to keep model sailplanes circling in thermals. This owner holds an amateur's licence for his transmitter.

Modellers Take

IN the ranks of the models enthusiasts there are two schools of thought. One feels that flying a miniature aircraft on the end of a string is a negation of everything implied by the term "flight"; the other is certain that control-line flying is the be-all and end-all of mechanized hobbies and the most wildly exciting of sports—besides, they argue, a tethered machine cannot disappear into the blue, as free models have been known to do. The control-line school fly their models in a circle by means of a line which, being double, also serves to operate the elevators. The increasing power output of the miniature engines, mainly of

(Left) Before the speed contest: weighing-in a model which has secured records for its twelve-year-old designer. Fully faired-in engines are usual.

(Below) Here a 1.1-oz radio unit—part of which is alongside the fin—controls pitch and yaw by a "ruddevator" and governs engine speed

Built by the world's speed-record holder, this 18in span, 27-oz craft has a single-blade dynamically balanced airscrew.

Their Own Line

the two-stroke diesel type, has made fantastically high speeds possible. American enthusiasts, in particular, have brought the ultra-fast captive model to a high pitch of efficiency, and, as these photographs show, they have not hesitated to base their designs on the latest supersonic full-scale developments—or even get a step or two ahead. Meanwhile, the more enterprising among the free-flight protagonists on both sides of the Atlantic are achieving some remarkable results with radio control. Considerable progress has also been made with rocket propulsion and with jet power-units of the impulse-duct type.

(Right) Critical operation: ground-starting with a trolley nearly big enough for a full-scale aircraft. It contains batteries and a motor.

(Below) An ultra-modern raked-ring type built by a U.S. Navy Engineer Officer. Note the clean engine fairing and cooling-air entry and exit ducts.

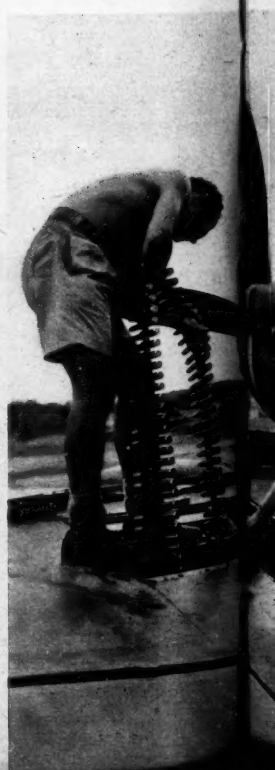
(Below) Suggesting, except for the airscrew, one of the startling new jet fighter projects, this butterfly-tail model has its engine in the wing.

The date on the "Aircraft State" board is 12. 4. 49 as crews are briefed for "Operation Torquay." Revolvers are the fashion.

"... that keep the J

AS a tribute to the hardihood and quiet efficiency of the Royal Air Force in the Far East, *Flight* is happy to print these views. They were secured in Malaya, where the Service is 5,000 strong, and illustrate the preparations for a strike deep into the jungle. Reports have been received that bandits in strength are in Pahang. Surrounding the area to be attacked is a patrol of the First Devons, and the R.A.F. is responsible for driving out the bandits

A jungle-survival parachute pack, dropped to assist stranded troops, pending relief. Note signal pistol and machetes.



All through the night the Spitfires have been guarded by the Malaya Regiment. Early morning servicing is seen to be under way.

the Jungle Law." *(Kipling)*

into a clearing where they can be engaged by the Army.

The many of our readers who saw war service in the Far East may remark how little changed are the scenes they came to know so well. But this is no reason for concern: the men, we may be thankful, are of the same calibre as those who successfully "slogged it out" with the Japanese under heartbreaking circumstances, and the machines are still up to their task

(Centre) Armourers tend the 20 mm. armament of a Spitfire. (Below) Their attack completed, "Spits." pass a Dakota observer.

Continuous Position Fixing

Latest Development of Decca Navigation System

As we have often noted, the continual trend of life to-day is toward ever-increasing complication, and this is perhaps truer in reference to aviation than to any other single sphere of man's activities. There is, of course, no point in grumbling about it, but the very fact of being caught up in the tangled web labelled "progress" is to make the thinking person all the more conscious of the elemental values of simplicity.

This recognition of the merits of simplicity has, in aviation at least, led to the philosophically amusing situation that in order, for example, to make a pilot's job easier a complex piece of mechanism will be installed; but in order that the pilot shall be able to comprehend what is happening, the mechanism is further complicated so that the story of what it is doing can be presented to the pilot in simple "language."

It should not be imagined for a moment that we are opposed to this state of affairs. Man must go forward or perish: it is just unfortunate that going forward gets progressively more difficult and doubly unfortunate that man himself remains more or less the same. However, whilst *homo sapiens* continues to have the same sort of brain and muscular and nervous systems, some kind of interpretative compromise must be provided to bridge the gulf between him and his machines

These thoughts are prompted by a demonstration recently given us of the latest refinement of the Decca Navigator System. The Decca Flight Log, as the new device is called, makes the job of navigation virtually a matter of looking at a map and seeing one's progress automatically recorded across it. On the map there are all the usual salient features of terrain and so forth, plus the desired track, bearings, reciprocals and mileages between departure and destination points. As the aircraft flies its progress is automatically *recorded* on the map.

There is more to this than merely seeing where one is and where one has been. The pilot or navigator can see where he has to go and how far it is; and if he is not making good the designed track, his deviation is shown to him so that he can correct it. It should not be thought that this is necessarily trammelling the essential freedom which (theoretically, at any rate) belongs to the aircraft. If, for example, instead of proceeding to airport B, the captain is ordered to divert to airport C, all that need be done is to draw a pencil line on the map from the aircraft's existing position to C and alter heading so that the newly drawn track is followed. The whole thing is so simple as almost to warrant the term child's play.

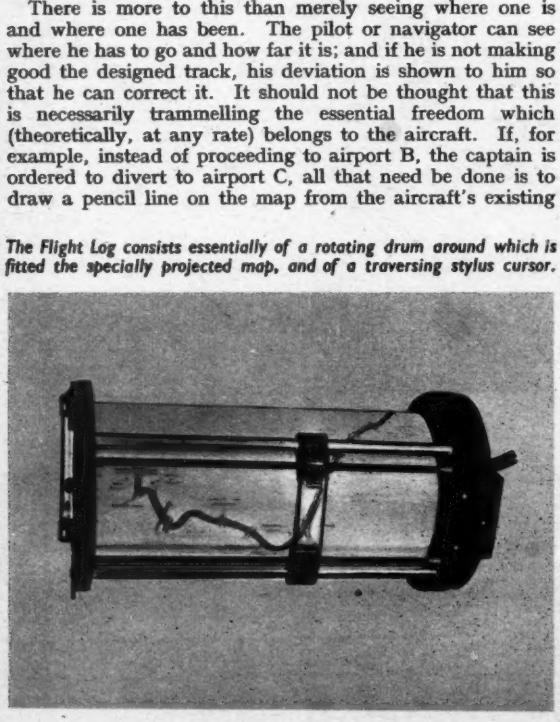
Nevertheless, in accord with our introductory remarks, there is a background of complexity to the simple presentation, although not to an elaborate degree. The basic system evolved by the Decca Navigator Co., Ltd., was introduced to readers of *Flight* in the issue of September 13th, 1945. As is now well known, the system comprises the continuous transmission of radio signals from four ground stations—a master and three slaves, together comprising a "chain"—the signals being emitted into space along lanes which, when overprinted on a conventional chart, form a hyperbolic lattice pattern.

The signal lanes are coloured red, green and purple to identify them with the three slave stations and are further lettered and numbered for individual identification. Thus, in the basic system using a chart overprinted with the signal-lattice pattern, by identifying any two separate lanes —i.e., a red with a green, a red with a purple or a green with a purple according to topographical area—a position fix is obtained. Means of identifying the appropriate lanes is provided by indicators, known as Decometers, one for each slave station, which continuously register the letters and numbers of the signal lanes traversed at any instant of time. It may thus be appreciated that, given a Decca receiver, a set of Decometers, and the appropriate chart of the area, it is possible to determine a position fix at any moment and with great simplicity.

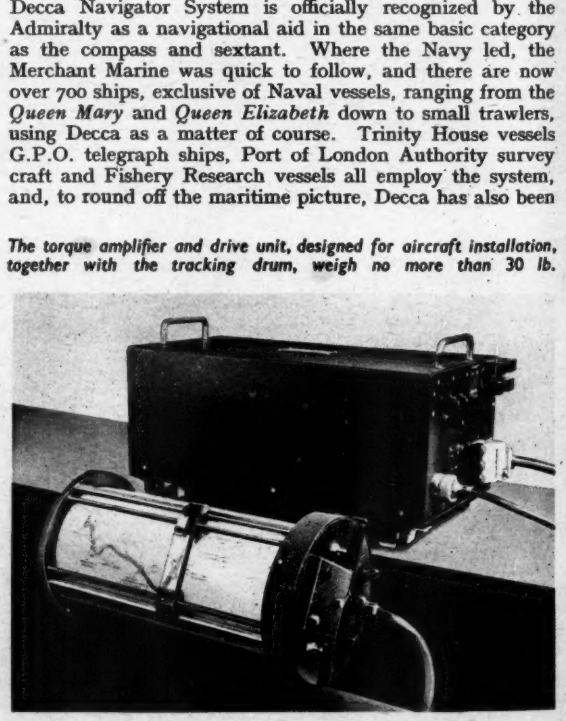
Maritime Usage

This ability to be given a positive, highly accurate fix at any time, and in a matter of seconds, was quickly accepted by the Royal Navy as being something of enormous value. So much so, in fact, that to-day the Decca Navigator System is officially recognized by the Admiralty as a navigational aid in the same basic category as the compass and sextant. Where the Navy led, the Merchant Marine was quick to follow, and there are now over 700 ships, exclusive of Naval vessels, ranging from the *Queen Mary* and *Queen Elizabeth* down to small trawlers, using Decca as a matter of course. Trinity House vessels G.P.O. telegraph ships, Port of London Authority survey craft and Fishery Research vessels all employ the system, and, to round off the maritime picture, Decca has also been

The Flight Log consists essentially of a rotating drum around which is fitted the specially projected map, and of a traversing stylus cursor.



The torque amplifier and drive unit, designed for aircraft installation, together with the tracking drum, weigh no more than 30 lb.



officially adopted by the Royal Danish, Swedish and Dutch Navies.

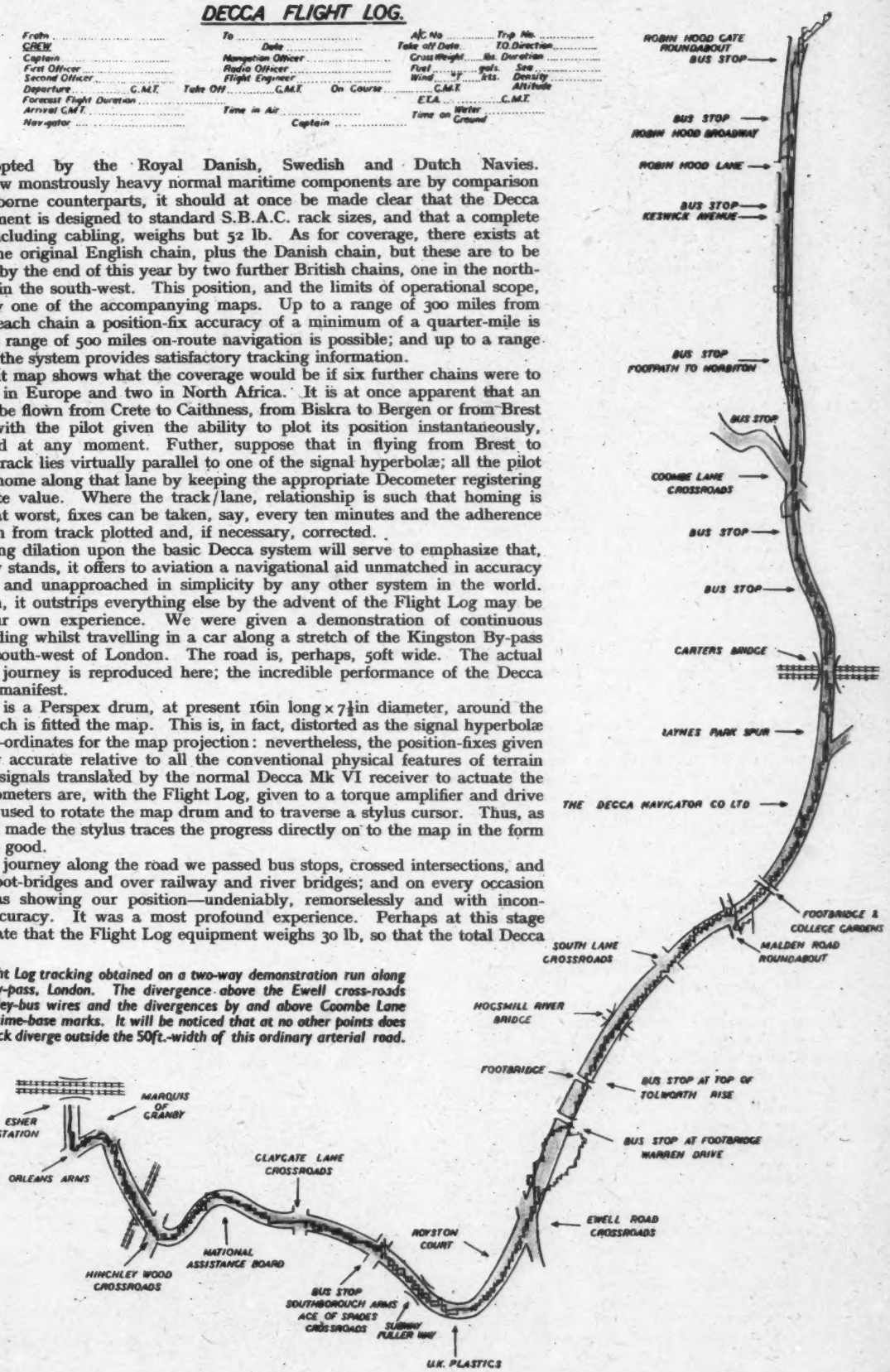
Knowing how monstrously heavy normal maritime components are by comparison with their airborne counterparts, it should at once be made clear that the Decca aircraft equipment is designed to standard S.B.A.C. rack sizes, and that a complete installation, including cabling, weighs but 52 lb. As for coverage, there exists at the moment the original English chain, plus the Danish chain, but these are to be supplemented by the end of this year by two further British chains, one in the north-west and one in the south-west. This position, and the limits of operational scope, are defined by one of the accompanying maps. Up to a range of 300 miles from the centre of each chain a position-fix accuracy of a minimum of a quarter-mile is given; up to a range of 500 miles on-route navigation is possible; and up to a range of 1,000 miles the system provides satisfactory tracking information.

The adjacent map shows what the coverage would be if six further chains were to be built, four in Europe and two in North Africa. It is at once apparent that an aircraft could be flown from Crete to Caithness, from Biskra to Bergen or from Brest to Belgrade with the pilot given the ability to plot its position instantaneously, accurately and at any moment. Futher, suppose that in flying from Brest to Belgrade the track lies virtually parallel to one of the signal hyperbolæ; all the pilot need do is to home along that lane by keeping the appropriate Decometer registering the appropriate value. Where the track/lane, relationship is such that homing is not possible, at worst, fixes can be taken, say, every ten minutes and the adherence to or deviation from track plotted and, if necessary, corrected.

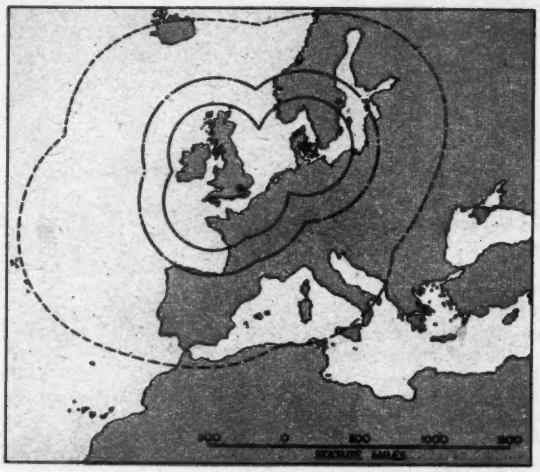
The foregoing dilation upon the basic Decca system will serve to emphasize that, even as it now stands, it offers to aviation a navigational aid unmatched in accuracy and coverage and unapproached in simplicity by any other system in the world. How far, then, it outstrips everything else by the advent of the Flight Log may be judged by our own experience. We were given a demonstration of continuous position-recording whilst travelling in a car along a stretch of the Kingston By-pass road, to the south-west of London. The road is, perhaps, 50ft wide. The actual record of the journey is reproduced here; the incredible performance of the Decca Flight Log is manifest.

The device is a Perspex drum, at present 16in long × 7¼in diameter, around the surface of which is fitted the map. This is, in fact, distorted as the signal hyperbolæ are used as co-ordinates for the map projection: nevertheless, the position-fixes given are absolutely accurate relative to all the conventional physical features of terrain shown. The signals translated by the normal Decca Mk VI receiver to actuate the ordinary Decometers are, with the Flight Log, given to a torque amplifier and drive unit. This is used to rotate the map drum and to traverse a stylus cursor. Thus, as the journey is made the stylus traces the progress directly on to the map in the form of track made good.

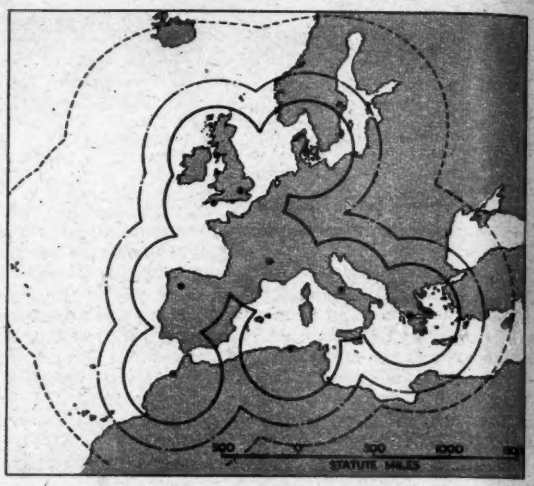
During our journey along the road we passed bus stops, crossed intersections, and went under foot-bridges and over railway and river bridges; and on every occasion the stylus was showing our position—undeniably, remorselessly and with incontrovertible accuracy. It was a most profound experience. Perhaps at this stage one should state that the Flight Log equipment weighs 30 lb, so that the total Decca



Facsimile of Flight Log tracking obtained on a two-way demonstration run along the Kingston By-pass, London. The divergence above the Ewell cross-roads was due to trolley-bus wires and the divergences by and above Coombe Lane are one minute time-base marks. It will be noticed that at no other points does the recorded track diverge outside the 50ft.-width of this ordinary arterial road.



The existing English and Danish chains will be supplemented by the end of this year with additional N.W. and S.W. British chains.



With the construction of six more chains, the whole of Europe, Scandinavia, N.E. Atlantic, Mediterranean and North Africa would be covered.

Continuous Position Fixing . . . .

Navigator plus Flight Log installation for an aircraft would amount to only 82 lb.

It will be noticed that the track of our progress is shown as a zig-zag line: this was due to the large-scale map used for the demonstration. With a normal-scale map, say, 1: 1,000,000, the track would be a smooth continuous line, for, no matter what the scale, the "stepping" of the display motoring is in units of 1/30th of a signal lane. The scale of the maps employed with the Flight Log can be altered for different requirements, and an entire flight, an approach pattern or a holding procedure, can be presented in turn.

It will be seen that just above the Ewell Road crossing the tracking diverges off the road; this was due to the displacement effect of trolleybus wires. In this connection it is enough to say that aircraft are unlikely to fly beneath such hazards. Again, toward the upper part of the map the track trace can be seen to diverge in little "peaks"; these are time-base marks, for the stylus can be made to give a little jerk once every minute and so record not only track made good but also the time component as well. (The time "peaks" do not appear throughout the run as this function of the equipment was only switched in for a short period as a demonstration of its operation.)

What of the future? That the ordinary Decca Navigator System is technically unassailable is surely patent from the comprehensive maritime usage. If further emphasis is needed to point the case for aeronautical application, it is offered by the fact that the Central Photographic Establishment of the Royal Air Force have employed the system extensively for the arduous duty of accurate tracking for aerial survey, and their findings are given in a report couched in eulogistic terms. The Royal Aircraft Establishment, Farnborough, have also conducted extensive trials, again resulting in an excellent report. The reliability of the system, in terms of breakdown, is illustrated by the fact that, during the last year's working—continuous 24-hour working—the total time lost in breakdown of signal transmission was 156 seconds.

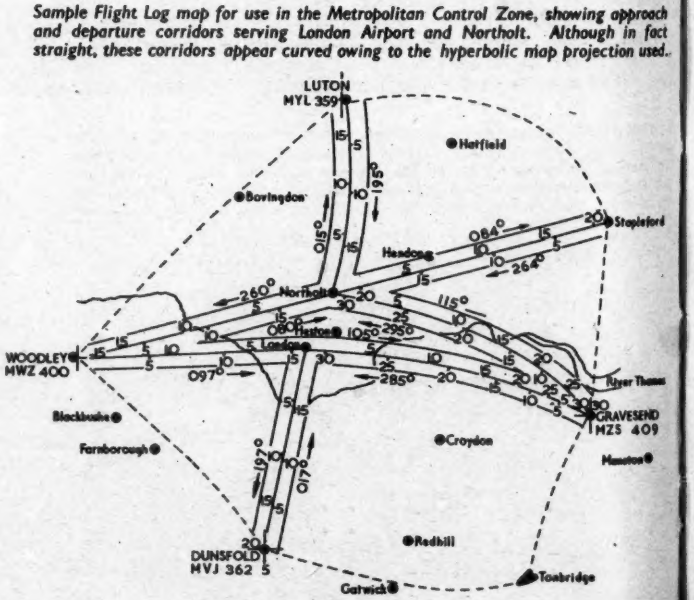
Economically the system should be extremely favourable for aeronautical application. The existing chain was erected by Decca and is operated at the company's own expense, whilst the Danish chain was paid for and is operated by the Danish Decca Company. The two new British chains will also be the parent company's own responsibility.

Receiving and indicating equipment is furnished for ships on an inclusive-maintenance hire-charge basis at £350 per annum: there is no reason why a similar scheme should not apply to aircraft. What must be stressed is that the adoption of the system for aircraft involves no capital cost burden. The equipment is hired, the rental including servicing and maintenance, and that is all. It is perhaps apposite to observe that anything that will relieve the operational cost of British civil aviation should receive the most careful attention—if only in fairness to the taxpayer.

We feel that the adoption of the Decca Navigator System for civil aviation should receive official encouragement without delay. After nearly four years, aeronautical application is officially still only "under active consideration" by the Ministry. There appear to be no arguments against the technical suitability or reliability of the system, and it offers an unparalleled service without heavy financial penalty.

C. B. B-W.

Sample Flight Log map for use in the Metropolitan Control Zone, showing approach and departure corridors serving London Airport and Northolt. Although in fact straight, these corridors appear curved owing to the hyperbolic map projection used.



CIVIL AVIATION NEWS

FINAL CHECK: In the next few weeks the Brabazon I will be thoroughly "gone over" and tested in preparation for taxying trials which are due to start towards the end of this month. The group standing at the nose provides a useful comparison in size with the aircraft.

Private Fliers' Airfields: Additional B.O.A.C. Services: Airmail Charges

M.C.A. AIRFIELD POLICY

DESPITE repeated acceptance by post-war Ministers of Civil Aviation of their responsibility for all spheres of civil aviation, an apathetic attitude towards the interests of private fliers, clubs and charter companies continues to prevail. For instance, in the Ministry's airfield policy for London—where London Airport stands out as the only "concrete" example of a positive policy—there is apparently no provision for British and foreign private fliers or independent operators of small passenger aircraft.

Obviously, an airfield to serve such interests should be south of the Thames and within easy reach of London by surface transport. It should, also, be unhampered by Metropolitan air-traffic rules. Stanstead is obviously unsuitable, except for large cargo aircraft; Lympne is important as a coastal Customs airfield and as an alternative in bad weather; Croydon and Gatwick are two established airfields in which the M.C.A. already has an interest.

There is a Ministerial responsibility to the private owner as well as to the Corporations, but so far there is no indication of a plan. In the Minister's desire to cut overhead expenses and improve the appearance of nationalized aviation, the policy to economize at all costs has become one of economizing at the expense of private flying. As a result, Blackbushe and Bovingdon are to be closed, Croydon is to have "working hours," Gatwick may be derequisitioned and a buyer for Lympne would be welcomed.

The argument to support this retrenchment is based upon operating figures, of which those for January this year are an example. Movements of private aircraft at Blackbushe were 108, at Bovingdon 78, Croydon 132, Gatwick 56 and Lympne 155. Charter movements at these airfields were 73, 130, 201, 28 and 14 respectively. While this may prove that the Ministry would not be justified in maintaining such unprofitable propositions, it would be short-sighted to consider only the present system of dispersed airfields. Croydon is restricted geographically. Gatwick is the only airfield around London with an adjacent railway station, from which trains to London take 45 minutes; it is outside the present Metropolitan Control Zone and development is possible. The Ministry may have its reasons for not proceeding with Gatwick for the benefit of private pilots, but private owners feel strongly that some policy should be decided upon before controlling interest in all the possible airfields is lost and an entirely new site has subsequently to be found.

BEAVER AND DROVER AS VISITORS

RECENTLY brought over from Canada, the D.H. C-3 Beaver illustrated on p. 658 is being used by the parent de Havilland Company in this country for general communications and utility purposes; it is understood that they have found it an ideal "staff car."

A robust four-seater designed to meet the requirements of Canadian operators, it is equally suitable for the carriage of "awkward" freight, since hatches in the rear wall of the cabin, and a wide door on each side, allow long articles to be loaded and stowed. Power is provided by a 450 h.p. Pratt and Whitney R-985 Wasp Junior driving a two-bladed Hamilton Standard controllable-pitch airscrew.

The visiting aircraft will also be used as a demonstration model on this side of the Atlantic and, in fact, is itself for sale. The price of the Beaver over here, with British C. of A., will probably be in the region of £5,500.

Another overseas D.H. type, the A-3 Drover, is being crated in Australia and may, perhaps, reach this country in time for the S.B.A.C. Show.

PROGRESS IN NEW ZEALAND

IN a recent review of civil aviation, the Hon. F. Jones, Minister in charge of Civil Aviation for New Zealand, made reference to the progress which had been made since the airline companies had been absorbed into the National Airways Corporation.

A large civil administration, said the Minister, had been built up of experts in a variety of professions and trades. Large extensions and improvements had been made to existing airports and the entire radio system had changed over from medium frequency to high frequency; many secondary radio aids to navigation had been installed, while point-to-point ground communications had been completely reorganized; and a complete chain of radio-range stations on the trunk routes and a revised traffic-control system had contributed to regular operations. The Government would continue, he said, to use existing telecommunications and radio-aid equipment to serve established air routes in accordance with those standards recognized as being necessary to maintain reasonable regularity of scheduled operation. The policy of recruiting professional and technical staff was being continued so that the programmes of reorganization of airways telecommuni-

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cations, of surveys, and of scientific studies of the application of new inventions in electronics could proceed together.

The New Zealand National Airways Corporation now flies some 2,201 route miles on internal services and 5,273 in the Pacific region. The daily scheduled total mileage is about 11,509 and 753 respectively.

B.O.A.C. SERVICES INCREASE

IN anticipation of increased summer tourist traffic, B.O.A.C. introduced on June 1st one extra return flight a week on the Atlantic service, bringing the number up to seven return services, providing more than 300 seats weekly in each direction. Under the new schedule, westbound flights are made on Tuesdays and Fridays to Montreal via Prestwick and Gander; on Mondays, Thursdays and Saturdays to New York via Prestwick and Gander; and on Wednesdays and Sundays to New York via Shannon and Gander. Return flights from Montreal to London fly via Gander and Prestwick on Wednesdays and Saturdays, while those from New York leave on Mondays and Thursdays via Gander and Shannon, and on Tuesdays, Fridays and Saturdays via Gander and Prestwick.

Further increases have also been made on the B.O.A.C./Qantas Constellation services between Sydney and London. There will be eight return flights a fortnight, providing 344 seats in each direction. Services will leave London Airport each Sunday, Wednesday and Thursday and on alternate Fridays and Mondays. Return flights will leave Sydney each Monday, Wednesday, Friday and Saturday. The journey of 12,000 miles from the United Kingdom takes 87 hours. There is an additional stop at Basra on the return flight from Sydney and the time taken to London is 97 hours. Intermediate stops are made at Rome, Cairo, Karachi, Calcutta, Singapore and Darwin. Calls at Batavia are made by the services leaving London and Sydney on Wednesdays. Fares between London and Sydney are £260 single, £468 return.

BRITISH EXPORT: A Ford Prefect being loaded aboard a Curtiss Commando which flew it in one hour 15 minutes from Guayaquil to Quito, Ecuador. Delivery by train across the Andes would have taken two days.

British Airways' Operating Statistics for February, 1949

(Figures for the corresponding period in 1948 are given in parenthesis)

	B.E.A. All Divisions	B.E.A. British Division	B.E.A. Continental Division	B.O.A.C. All Divisions	B.O.A.C. Western Division	B.O.A.C. Eastern Division	B.S.A.A.
Passengers carried	27,627 (22,676)	15,034 (13,238)	12,593 (9,438)	8,970 (8,073)	1,944 (1,758)	7,026 (6,315)	2,598 (1,138)
Cargo carried ;							
Mail (tons)	241.1 (113.3)	86.6 (68.0)	154.5 (45.3)	129.7 (154.9)	29.6 (24.7)	100.1 (130.2)	16.0 (15.3)
Freight (tons)	340.6 (225.4)	93.5 (48.2)	247.1 (177.2)	254.5 (213.0)	48.5 (27.6)	206.0 (185.4)	60.9 (44.7)
Average load ;							
Passengers (No.)	10.8 (10.1)	8.9 (6.5)	11.8 (13.0)	15.6 (11.6)	26.7 (16.9)	14.4 (11.0)	8.3 (9.1)
Total (lb)	2,612 (2,351)	1,861 (1,296)	2,939 (3,099)	4,940 (3,795)	6,322 (5,227)	4,743 (3,632)	3,809 (3,835)
Average capacity ;							
Seats (No.)	19.3 (18.3)	16.8 (15.4)	20.5 (20.6)	24.6 (19.8)	41.8 (41.3)	22.8 (17.1)	20.5 (19.5)
Total (lb)	4,464 (4,071)	3,488 (3,283)	4,888 (4,630)	7,962 (6,070)	9,929 (11,052)	7,682 (5,502)	8,477 (7,226)
Average length of haul (miles) ;							
Passenger	319 (325)	166 (163)	489 (534)	2,908 (2,888)	2,318 (2,152)	3,061 (3,092)	818 (3,192)
Mail	452 (388)	169 (139)	610 (760)	4,769 (4,209)	3,572 (3,468)	5,122 (4,350)	4,863 (5,932)
Freight	519 (566)	186 (165)	645 (675)	3,781 (3,459)	2,945 (2,945)	3,977 (3,535)	2,471 (6,005)
Hours flown ;							
Revenue ; Passenger services ...	5,474 (4,914)	2,315 (2,519)	3,159 (2,395)	8,419 (10,448)	666 (919)	7,753 (9,529)	1,265 (1,967)
Cargo services ...	517 (276)	— —	517 (276)	928 (798)	357 —	571 (798)	204 (62)
Charter and special flights	77 (45)	77 (45)	— —	358 (413)	— (96)	358 (317)	531 —
Non-revenue	211 (174)	77 (75)	134 (99)	871 (1,836)	52 (588)	819 (1,248)	198 (163)
Equivalent annual utilization (revenue hours flown) per aircraft	1,053 (973)	901 (889)	1,183 (1,075)	1,254 (1,203)	— —	— —	1,573 (1,688)
Unduplicated route miles in operation at end of period	11,885 (13,043)	2,387 (3,789)	9,498 (9,254)	63,786 (60,213)	8,674 (8,523)	55,112 (51,690)	12,926 (18,375)
Percentage regularity	93.9 (86.4)	95.5 (82.6)	91.2 (98.3)	97.1 (98.0)	91.8 (83.9)	97.9 (99.5)	98.2 (90.4)
Average length of stage flights (miles)	205 (197)	105 (120)	391 (399)	1,039 (893)	1,038 (1,152)	1,039 (871)	779 (1,175)

TRAFFIC and operating statistics for the British Airways Corporations for February, 1949, issued by the Ministry of Civil Aviation, show a still further decline, as compared with previous months, in the number of passengers and amount of freight carried. During the month 37,433 revenue passengers were carried by the three Corporations, compared with 38,366 in January and 40,026 last December. The total is, however, an increase on the figure for February last year, when 30,087 were flown. Naturally, the short month is contributory.

Revenue cargo, mail and excess baggage carried during January, 1949, amounted to 1,074 tons and during February to 1,042 tons, compared with 765 tons in February last year. Revenue passenger load-factors compared with the same period last year had increased from 42.3 per cent to 52.9 per cent on internal services and from 57.6 per cent to 60.1 per cent on international services, making a total increase to 59.6 per cent from 56.4 per cent. The overall revenue load-factor, including freight, decreased from 60.3 per cent to 59.3 per cent.

QUESTIONS IN PARLIAMENT

ASKED to consider a reduction in postal rates for parcels sent overseas by air in view of the differences between air-mail charges and surface-mail charges, the Postmaster-General pointed out that second-class mail, which included samples, could be sent by air at reduced postage rates to the whole of Central and South America and the West Indies. He hoped shortly to provide similar facilities to Canada, the U.S.A. and Mexico, and to extend them to Commonwealth destinations on the Empire routes to South Africa, India and Australia by about the end of the year. When it was pointed out that a parcel to Australia on which a charge of 11d was made for ordinary transmission by mail would cost 33s by air, the P.M.G. said he would like to remedy the situation as soon as possible.

The Parliamentary Secretary to the M.C.A. informed the House that no increase was to be made in landing charges for joy flights during 1949, but the whole question of landing charges for such flying would be subject to review at the end of the year. Whereas the Ministry encouraged joy-riding to create airmindedness, he thought that it was not favourably regarded by people residing in the vicinity of airfields.

Reference was made to the recent London visit of the Solent flying boat when Mr. Lindgren was asked if consideration was being given to a seaplane base on the Thames. He replied that regular flying-boat operations on such a busy waterway would be impracticable. When further asked whether any further action was being taken to give effect to the Pakenham Report—dealing with the selection of a suitable site for a marine base—Mr. Lindgren said is was not an urgent matter at present because the S.R.45 was the only new flying-boat involved in the immediate future and the report was not at present being proceeded with.

BREVITIES

FROM July 1st B.S.A.A. will operate through Panama, which is to replace Barranquilla as a port of call on the route down the west coast of South America to Santiago, Chile.

* * *

Airtech, Ltd., have announced that their depot at Bovingdon Airport is now available twenty-four hours a day for full servicing facilities.

* * *

During the first three months of 1949, B.O.A.C. carried 2,357 passengers on its North Atlantic routes, an increase from 19 to 30.2 in the average number of passengers carried on each flight as compared with the figures for the same period in 1948. The total payload carried on the route during the three months amounted to nearly 370 tons, an increase of 21.4 per cent over the 1948 figure.

* * *

Lord Pakenham, Minister of Civil Aviation, recently visited Wisley Airfield, Surrey, and flew in the Vickers Viscount. He was accompanied by Mr. G. S. Lindgren, Parliamentary Secretary to the M.C.A., Sir Arnold Overton (Permanent Secretary), Air Chief Marshal Sir Frederick Bowhill (Chief Aeronautical Adviser), and Sir Hew Kilner, deputy chairman of Vickers-Armstrongs, Ltd.

* * *

A plan to nationalize the two civil airlines in Pakistan has been reported from Karachi. Under a scheme now being considered by the Pakistan Government the two companies—Pakistan Airways and Orient Airways—would be merged into one nationalized corporation known as Pakistan Airlines, with the Government holding 51 per cent of the shares. A number of Convair airliners, one of which is already operating with Orient Airways, would probably be purchased from America

HELIPORT NO. 1: New York's first commercial helicopter base began operations recently at Pier 41 on the East River. The "heliphibian" is a Bell Model 47 fitted with floats.

In order to handle increased traffic on their routes to North Africa, Air France recently opened a new central booking office in Oran. During 1948 they carried 55,814 passengers between Oran and the airports of France, compared with 7,486 in 1938 and 761 in 1935. Similar increases in the amount of freight carried on these routes have also been recorded.

* * *

Capt. J. W. Burgess, a New Zealander, has been appointed flight captain in charge of the B.O.A.C. Line which will fly the ten Boeing Stratocruisers when they are put into service on the North Atlantic routes. Capt. Burgess joined Imperial Airways in 1935 and was seconded to Tasman Empire Airways as chief pilot from 1939 to 1945.

* * *

Closely following the announcement that Qantas Empire Airways have equipped a Lancastrian as a breakdown-assistance aircraft comes the news that Q.E.A. Constellations have, during recent months, suffered various mechanical troubles, with resultant delays at the terminal airport of Sydney and on the routes. No public statement has been made, but the difficulties are generally attributed to a scarcity of spares, and of dollars with which to purchase them.

* * *

Published by the Travel Association on behalf of the International Union of Official Travel Organizations, a report on international travel statistics obtained from 46 countries states that the volume of movement between the chief European countries during 1947 exceeded seven million persons, compared with approximately twelve million before the war. Many European countries reported that nearly 20 per cent of their tourist traffic was airborne.

* * *

Brig.-Gen. Sir Osborne Mance, K.B.E., C.M.G., D.S.O., has been elected president of the Institute of Transport for the year commencing October 1st, 1949. Also elected were: Vice-presidents: E. Davidson, Sir Robert Letch, V. A. M. Robertson, C.B.E., M.C., A. B. B. Valentine, J. S. Wills, W. Donaldson Wright; hon. treasurer, S. Kennedy; hon. librarian, C. T. Brunner. Past-presidents who will also serve on the council are: R. Kelso, Sir Frederick Handley Page, C.B.E., D. R. Lamb, R. Stuart Pilcher, C.B.E., F.R.S.E., T. W. Royle, C.V.O., M.B.E., Sir William Wood.

* * *

A complete G.C.A. unit, with sound-recording gear and an operating staff of five, was flown to the Paris Aero Show, for the Ministry of Civil Aviation, in a Dakota of Trent Valley Aviation, Ltd., and it was returned to London after the Show, with six M.C.A. personnel, in a Dakota operated by British Nederland Air Services, Ltd. The overall cost is reported to have been some £50 cheaper than if surface transport had been used; moreover, since the equipment was delicate, the consignors were very probably spared the breakage losses common to surface transport.

* * *

It is reported from Ottawa that Mr. Harold Wilson, President of the Board of Trade, who is at present visiting Canada, has advocated the introduction of an air shuttle service to fly machinery parts to Canada. A proposal to this effect will be made to British manufacturers as one way of meeting U.S. competition in Canada, and to give Canadian buyers assurance that British replacement parts will be quickly available. The

service would apply particularly to parts for certain agricultural machinery, motor cycles and cars.

* * *

Canadian Pacific Airlines has announced that the first flight to Australia and New Zealand will start from Vancouver on July 13th. The service will operate twice a month, but will be increased if sufficient traffic is forthcoming. Operated by Canadairs, the service will be in direct competition with B.C.P.A.'s Sydney-Vancouver service, but the Canadian company will call at Auckland.

* * *

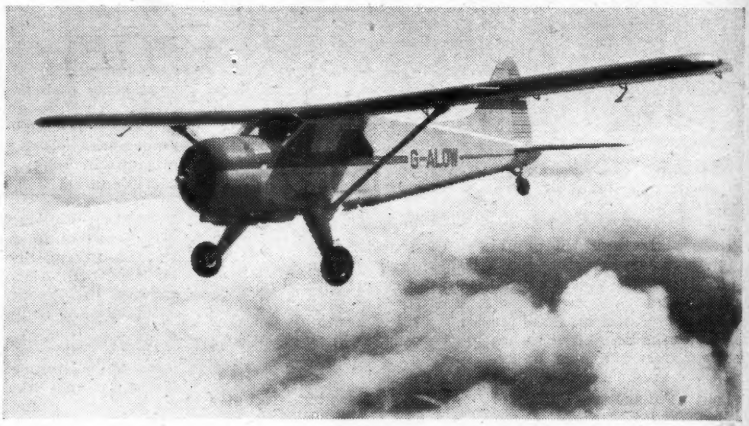
Air France have recently increased the network of radio stations under their control to twelve by the addition of three in the West African regions which fall under the company's air security supervision. The new stations are at Dakar, Niamey and Brazzaville and, following the Company's custom of commemoration of pioneers who built up their routes, the stations have been given the names of former radio-navigators —Cruveilher, Lesvesque and Jean Faucher respectively.

* * *

On June 10th Pan American Airways will introduce a weekly special luxury service between New York and London to be known as "The President." Operated with a Stratocruiser, the service will provide sleepers for all passengers (either "sleeperettes" or, for $25 extra, sleeping berths) and includes breakfast in bed, a seven-course dinner and other features not normally provided. The flights will leave New York on Fridays at 1600 hr and the return service will leave London for New York on Sundays at 1900 hr. The single fare of $360 is only $10 more than the regular fare.

FROM THE CLUBS

A Canadian D.H. Beaver arrived in this country a short time ago and was seen in public for the first time at the Royal Aeronautical Society's Garden Party on May 8th.



IN a recent review the Ultra Light Aircraft Association gives an outline of its activities. Subsequent to the reintroduction of the pre-war Permit to Fly, which was to be superseded by the Ultra-light-category Certificate of Airworthiness, designers and manufacturers were approached to produce aircraft, but results were disappointing, particularly in the matter of engines.

Arrangements had been in hand to hold a National Ultra Light Rally at Whitsun, but as the response was poor it had to be cancelled. Another effort is now being made to arrange a rally some time in September, and the organizers are negotiating for the use of one of the Butlin holiday-camp airfields. Tentative arrangements are for a two-day rally with accommodation available at the camp. It is hoped to organize closed-circuit races.

It is proposed to hold another flying training camp again this summer—probably somewhere in the Home Counties, and during July. The object is to train pupils up to Private Pilots' Licence standard and to provide a refresher course for more experienced pilots. The normal duration will be of 14 days, but the minimum period for which a booking will be accepted is seven days. Cost per head is expected to be about 25s to 30s an hour for flying and about £3 per week for messing and accommodation.

It is also announced that a design group has been found which is willing to revive the Chilton monoplane. Mr. C. H. Roberts, of the College of Aeronautical Engineering, and Mr. Marcus Langley, design consultant to the College, are said to be interested in the project as a useful design and construction exercise for students, and to be willing to undertake it.

Various enthusiasts have suggested specifications for an ultra-light two-seater trainer, two, at least, favouring high wing side-by-side layouts.

The U.L.A.A., which is a communal organization, requires active support from members.

* * *

IT is learned with regret that the Midland Bank Aero Club at Fairoaks will discontinue flying after the end of September this year, the intake of new members for flying having become steadily fewer. It may be remembered that flying charges were met by the Midland Bank and that a nominal subscription of £2 2s was charged for flying members and 10s 6d for associate members. A contributory cause of the lack of interest is thought to be the new M.C.A. requirements for obtaining a Private Pilot's Licence. In the three Tiger Moths the 56 flying members logged 78 hours during April and just over 80 hours during May.

* * *

FURTHER progress was made during 1948 towards bringing the Royal Singapore Flying Club back to its pre-war standard. The membership increased during the year to 122 flying, 31 non-flying and two life members, and, with the addition of four Tiger Moths purchased from Australia, the fleet now consists of three Auster III and four Tiger Moths. In 1941 the Government of Singapore requisitioned most of the club's equipment, and when the club reopened in 1947 three ex-R.A.F. Austers were bought. Last year 842 flying hours were logged, of which 516 were instruction and 282 solo, and 21 members obtained their first "A" licences.

Until recently aircraft maintenance was done by outside firms, but the club has now reverted to the pre-war practice of servicing its own aircraft, and Mr. G. E. Boehm (chief engineer of Wearnes Air Services in Singapore before the war) has been engaged as the chief engineer; workshops and hangars are being provided. Mr. C. A. Le Mesurier, recently with the Wiltshire School of Flying, was appointed C.F.I. in August, 1948, to augment the four members who had acted as honorary instructors. In addition to instruction at Singapore, towards the end of the year instruction was given at Kluang airfield for the benefit of members resident in North Johore.

One interesting charter contract carried out was the delivery of payrolls from Singapore to rubber estates in Johore, across areas where bandits were active. This arrangement, besides being welcomed by the planters, enabled cross-country flying instruction to be carried out at the same time.

On the social side, frequent supper dances were held in the clubhouse, which had been renovated, thus greatly improving the amenities of the club. The Government of Singapore has given the club no direct financial assistance but the repayment of duty collected on the petrol used, and the remission of landing fees, has been greatly appreciated.

* * *

THE main event of the Air Display to be held at Brough on June 18th, by the Brough Branch of the R.Ae.S., will be the Cirrus Trophy Competition, for which the first prize is the Cirrus Trophy and £50, with other prizes of £25, £15 and £10. The competition is held each year in the form of a navigation exercise for Cirrus-Minor-engined Austers, in which pilots fly their aircraft in such a manner as to obtain the best performance from their engines. Marks are based on fuel consumption and the speed obtained over the given route so that the pilot who selects the best combination of air speed and r.p.m. has a better chance than the one who flies round the course at full throttle.

The competition is flown over three or four legs giving a total flying time of about 1¼ hours, and pilots are given the details only 20 minutes before take-off time. Entries are limited to approximately 40 aircraft, each carrying a crew of two and the entrance fee is £1 1s per aircraft. Full details and entry forms are obtainable from Mr. P. G. Lawrence, Blackburn and General Aircraft, Ltd., Brough. Entries must be submitted by June 11th.

ANGLO-AMERICAN CONFERENCE

Some Important Papers Read : British Designer's Lecture Broadcast to Public

REPORTS of the Anglo-American Aeronautical Conference, held in New York last week and continuing this week with visits to factories and experimental establishments, suggest that the lecture session was completely successful, even though twenty-one papers had to be presented in three days. Held jointly by the Royal Aeronautical Society and its American counterpart, the Institute of the Aeronautical Sciences, this year's Conference was organized by the American body as an event complementary to that held in London in 1947.

Including the ten designers and others who read papers, a party of sixty-odd British visitors attended. Results of the personal contacts which were made, and of others which were renewed, should be valuable. As Sir Frederick Handley Page said in a speech at the dinner which terminated the lecture session, "The success and progress of aviation in Britain and the United States can be assured only by wholehearted co-operation between the two countries. If we have that co-operation, we need not worry about Iron Curtains."

Sir Frederick, incidentally, exhibited to his hosts what might be termed a British united front when he went on to say that it was very easy to criticize people who ran airlines, particularly in Great Britain. "Unfortunately," he said, "when you have got the public interested in a great transport system, as we have, you've got to be criticized. I would suggest that our critics be given a shot of dope and put to sleep for 20 years; they can then wake up and see what we have achieved in their absence."

During the function, Sir John Buchanan, president of the R.Ae.S., presented the Society's silver medal to Mr. Igor Sikorsky, of helicopter fame, "for his contribution to the development of aircraft and aeronautics throughout the world." Mr. Sikorsky is the first American to receive this award.

From the American side, an honorary fellowship of the I.Ae.S. was bestowed upon Capt. J. Laurence Pritchard, the secretary of the R.Ae.S.

Space does not, unfortunately, permit summaries of the papers to be given in this issue. Both British and American contributions were, in general, excellent, and attracted the keen interest of the large audience. Among the U.S. papers of wider general interest, that of Messrs. N. Burgess and J. C. Buechel of the General Electric Company was noteworthy for the exposition which they gave of their company's gas-turbine developments, particularly in the matter of anti-icing safeguards.

On the British side, Mr. G. R. Edwards, chief designer at Vickers-Armstrongs' Weybridge works, achieved the unusual distinction of having his lecture on "Turbine-engined Transports" broadcast—to the extent of about twenty minutes—on one of the radio networks. Though much of the content must have been rather over the heads of a lay-public audience, the paper was of unusual interest. Mr. Edwards reviewed contemporary British gas turbines and examined comparative costs as between turbine and piston-engines on both medium- and long-range aircraft. The advantages of gas-turbine power units on the decisive reduction of both vibration and noise level were summarized by the lecturer, who suggested that the increase in airframe and equipment serviceability due to absence of power plant vibration might, in terms of increased utilization, be the biggest contribution towards increased earning power that the gas-turbine type of engine would bring with it.

Mr. Edwards was convinced that for ranges up to 1,000 miles the turboprop was at least as economical as a comparable piston engine, but for ranges of about 2,000 miles there was little to choose between the operating economics of turbojet, turboprop and compound piston-engined aircraft. All three were more economical in direct operating cost than were their piston-engined equivalents. The lecturer concluded with the belief that the most important factor in the case for the turboprop aircraft was one which could not be assessed numerically, namely, the passenger's reaction to being transported in an aircraft of this type. He was convinced, from the reaction of seasoned travellers who had flown in turbine-engined aircraft now available, that the air-travelling public, once having had its taste of the comfort of a turbine-engined aircraft, would turn its back on what it now accepts as first-class air travel.

A VISUAL-SIGNAL REMINDER

A NEAT little three-colour glossary of standard visual signals used in air-traffic control has been prepared by the Shell-B.P. Aviation Service and will be issued to all holders of both Shell and B.P. Carnets; flying-club members may obtain copies on application to the aviation department at Shell-Mex House, London, W.C.2. Some metric conversion tables and a small map of airfields in Great Britain are included.

HERMES IV WALL-FURNISHING

THE Leathercloth Division of Imperial Chemical Industries, Ltd., state that the particular material recently mentioned as being used for cabin-wall covering in the Handley Page Hermes IV is not one of their products.

NEW VICKERS-ARMSTRONGS TYPES

REFERENCES to new and forthcoming types of Vickers-Armstrongs' aircraft were made by the chairman (Lt.-Gen. Sir Ronald Weeks) at last week's annual meeting of the parent company.

Sir Ronald said that they had received a contract to design and build two prototypes of a bomber trainer [the Varsity, with two Bristol Hercules, briefly described in *Flight* of March 17th] and it was expected that the first of the two would be flown in the autumn. Should the type prove successful it would follow the Valetta on the production line when contracts for the latter aircraft were completed.

"The design staff at Weybridge are also engaged on the design of an important aircraft for the Royal Air Force," said the chairman.

At the Supermarine works, the Seafire 47 contract had been completed and they had received a contract for a number of Attackers. Tooling was in hand and initial deliveries were expected towards the end of this year. A single-engined amphibian [the Seagull] with variable-incidence wing had been handed over to the Ministry for trial, but it was too early to say whether they would receive a production order. In December last, a new experimental single-seater [the 510] powered by a Rolls-Royce Nene engine, successfully carried out its first flight; a development of the Attacker, it should exceed the latter in speed.

At the Weybridge works, construction of the new stratosphere chamber was proceeding, but was not yet complete. They had received the necessary licences for the building of new wind tunnels to deal with modern aerodynamic problems, and erection was well advanced.

IMPORTS AND EXPORTS

ACCORDING to figures published in the Trade and Navigation Accounts for April, Britain's import figures for complete aircraft dropped in value to £62,750 (six aircraft) from the March total of £153,521 (10 aircraft). The value of parts imported also decreased from £622,792 in March to £489,292 in April. These smaller imports, however, are offset by decreased exports, the total value of aircraft and engines exported having fallen by £1,563,901. Details appear in the table below.

	Quantities			Value	
	Apr. 1949	Jan.-Apr. 1948	Jan.-Apr. 1949	Apr. 1949	Jan.-Apr. 1949
Imports :					
Complete aircraft (No.).	6	27	34	£ 62,750	£ 487,019
Aircraft parts (value) ...	—	—	—	489,292	2,141,755
Totals	6	27	34	552,042	2,628,774
Exports :					
Complete aircraft (No.)	72	422	397	732,267	6,725,844
Aircraft engines (No.) ...	106	406	464	362,492	1,210,286
Rubber Tyres (No.) ...	2,666	5,857	7,827	38,334	119,779
Other Items (value) ...	—	—	—	642,804	3,096,255
Totals	2,844	6,685	8,688	1,775,897	11,152,164

AN A.R.B. YEAR

Lord Brabazon of Tara Reports on Another Twelve Months of Valuable Work

IN accordance with custom, the annual report by the chairman of the Air Registration Board was presented on May 25th by Lord Brabazon of Tara, and was made the occasion of a luncheon at Claridge's Hotel, London, at which the various civil aviation interests were represented.

The report gives a good idea of the vast tasks undertaken by the Board, but space will allow reference only to the more important of them. In connection with I.C.A.O. Lord Brabazon utters a word of warning: In view of the difficulty of reaching agreement on even general principles, and the need for a degree of freedom in the interpretation of national requirements, is not (he asks) too much detail being prescribed in some international standards which should be left to national decisions?

Lord Brabazon reports that the Rotorcraft Requirements Co-ordinating Committee has reached an advanced stage in drafting design and construction requirements, and that the Board is prepared to recommend the issue of certificates of airworthiness for helicopters, provided these provisional requirements are met.

As examples of the Board's work Lord Brabazon quotes the following: recommendations that C.s of A. be issued for seven prototype aircraft, 492 series aircraft, and three glider types. During the last year 13 new piston engines were type-tested and new power ratings approved. Five gas turbines were also type-tested and approved ratings were granted. Two turboprop engines subsequently made 500-hour endurance tests, which were supervised by the Board as an independent body at the request of M.o.S.

Approved Organizations

The Board believes, Lord Brabazon states, that those who design and construct aircraft are fully qualified to carry a considerable degree of responsibility for their safety. It pursues this policy by granting approval to design and inspection organizations, and by leaving them to put into effect the general principles laid down by the Board in its requirements. The total number of organizations approved is now 1,228 and during the year no fewer than 202 new ones were approved. The developments which are taking place in equipment have thrown a heavy burden on the staff, who have not only the orthodox type of instruments to investigate but must also be in a position to make decisions on new devices such as those employing electronic systems.

Ever since the Board was charged with the responsibility of establishing the Civil Airworthiness Requirements, it has acknowledged the need for some form of practical guidance for the use of engineers concerned with maintenance and overhaul. It has been decided to produce a volume of pamphlets dealing with the basic engineering principles of a variety of subjects. These papers will not be mandatory, but it is hoped that by following the procedures explained, engineers will have a fuller appreciation of their responsibilities and will improve their ability to undertake them efficiently.

Other aspects of the Board's work to which Lord Brabazon refers in his report deal with work on behalf of foreign governments, underwriters and others. Surveys in respect of issue or renewal of C.s of A. have been made for airworthiness authorities in South Africa, Pakistan, India, Burma, Eire, France, Belgian Congo, Hong Kong, Iraq, East Africa and Sweden. The report states that "Airworthiness authorities in Europe and elsewhere have shown an increasing tendency to follow the Board in all matters of airworthiness."

A large section of the Board's activities relates to reports on defects and accidents. Information is collected from the Board's own surveyors and from other sources. The information is analysed and tabulated and, where necessary, circulated to the Ministries of Supply and Civil Aviation, and to manufacturers. During the past year more than 1,000 such reports have been received. Certain defects have resulted in the issue by constructors of 25 bulletins and 75 modifications.

Lord Brabazon records the fact that the place of the late Cdr. Harold Perrin has been taken by Col. R. L. Preston, and that Mr. Whitney Straight has been re-nominated by the operators, Mr. J. D. North by the constructors, and Mr. A. B. Stewart by the insurers.

At the luncheon, LORD BRABAZON proposed the toast to the Minister of Civil Aviation. After paying Lord Pakenham some personal compliments, he reversed the usual procedure of leaving words of praise for the staff until last, and said that it was largely due to the influence of the Board's chief executive, Mr. R. E. Hardingham, and its chief technical officer, Mr. W. Tye, that everyone realized the Board was there to help, not to dictate.

The Board, Lord Brabazon continued, was still suffering under the artificial cloud of the Helmore Report, a report of which the Board thought very poorly. It was obvious that the relationship between an independent body (such as the Board) doing public work and the Treasury must present financial difficulties. If it were not for two activities, the Board would be very nearly self-supporting. One was the investigation of prototype aircraft. Here they had to go hand in hand with the manufacturer, and it was a long and expensive business. On one machine, for instance, the fee received was £600, whereas it had already cost the Board over £10,000. He thought that for prototype aircraft such charges might well be included as part of the initial outlay rather than being put upon the Board. The second expensive department was the development of Airworthiness Requirements, which might also be a separate Government charge.

The path ahead, Lord Brabazon concluded, was a long and difficult one, but if they could be assured by the

(*Concluded at foot of p.* 661)

WORK OF THE A.R.B. SUMMARIZED

(12 months ended March 31st, 1949)

	1948	1949
Recommendations to the M.C.A. for :—		
Certificates of Airworthiness :—		
Issue of prototype	9	7
Issue of prototype (reduced fee)	29	8
Issue of series	949	492
Validation of foreign C.s of A.	78	20
Renewals and revalidations	866	1,253
Renewals and revalidations (abroad)	37	33
Approval of prototype (modified)	Nil	1
"B" Pilots' Licences (technical examinations) :—		
Issue	1,735	245
Extension	2,302	1,423
Aircraft Engineers' Operational Licences :—		
Issue	236	100
Variation	98	133
Aircraft Engineers' Maintenance Licences :—		
Issue	1,742	1,433
Variation and extension	1,041	1,717
Renewal	2,557	3,181
Firms' Organizations approved under Air Navigation Acts :		
For design	31	28
For inspection	128	174
Surveys for underwriters and others	150	154
British Gliding Association C.s of A* :—		
Issue of prototype	4	3
Issue of prototype (reduced fee)	Nil	1
Issue of series	85	47
Renewals	21	54
Total numbers of :—		
Aircraft on register	1,811	1,966
Aircraft having valid C.s of A.	1,380	1,373
Gliders and Sailplanes having valid C.s of A.	111	112
Maintenance Schedules approved	440	563
Current Aircraft Engineers' Operational Licences	236	274
Current Aircraft Engineers' Maintenance Licences	3,452	4,000
Firms' Organizations approved	1,098	1,228

*Issued on behalf of the British Gliding Association.

CORRESPONDENCE

The Editor does not hold himself responsible for the views expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters.

FLYING CLUBS

—here and in U.S.: An American Reader's Comparison

I ENJOY reading your fine magazine *Flight* very much, and I especially enjoy your feature "From the Clubs." If it is at all possible, I would like to know how your flying clubs are formed and maintained, and, also, I would appreciate any other information you could gather regarding rates, club rules, memberships, etc.

I have belonged to several flying clubs in this country (U.S.A.) and they all have a tendency to remain rather small. Most of your clubs appear to have a fairly large membership; evidently some even have their own airfields. These are the types of clubs I would like to see formed in this country, as they seem to have much more to offer.

Flight Service Centre, T/SGT. C. D. FAIRBANKS,
Olmsted Air Force Base, U.S.A.F.
Middletown, Penn.

[We are sending T/Sgt. Fairbanks some general information, but club secretaries or others may care to write direct to him. —ED.]

NATIONAL AERONAUTICAL MUSEUMS

A Contrast Presented by the United States

I HAVE read with more than passing interest Mr. D. S. Griffin's excellent letter in regard to the above in your May 12th issue, especially as a similar appeal which I made last August (not in *Flight*) produced no encouragement whatever

Contrast this disinterested attitude with that of air-minded citizens of the United States from the youngest aviation student or flying cadet/lightplane owner to the leading figures in American aviation, and what a completely different outlook in general will be found! The writer had the good fortune to spend just over a year in the U.S.A. in 1945-6, so can speak from first-hand personal experience.

Though in this country we have an excellent collection of models, drawings, old prints and photographs displayed in the Science Museum at Kensington (which I am prepared to admit covers very well the *early beginnings* of aeronautics) there is very little shown of the many numerous British experimental aircraft built between 1919 and 1939, and the wide range of various R.A.F. equipment during this long period of years. Similarly, the very wide selection of world-famous British types of the recent war seem to have been somewhat neglected—e.g., Hurricane, Mosquito, Beaufighter and Lancaster, to mention only a few.

Your correspondent is incorrect in stating that the general development and history of aircraft exhibited in the form of the actual prototypes or "first production" aircraft, both military and civil, have not been preserved "anywhere in the world"—to quote the expression he uses. In the United States there are at least three institutions which have been doing this kind of work for several years. There is the remarkable Smithsonian Institute and the newer National Aeronautical Museum, located in Washington, D.C. In the first-named will be found a big collection of historical and famous American aircraft, such as Langley's "Aerodrome," the Curtiss NC-4 flying boat, Lindbergh's *Spirit of St. Louis*, Wiley Post's Lockheed Vega *Winnie Mae*, and many other famous U.S. types, including the Wright brothers' original biplane which was returned from this country a few months ago. In the N.A.M. will be found the prototypes of over 75 different American bombers, fighters and transports used in the recent conflict. Not all of them have yet been moved from storage in the former Douglas factory at Chicago, as the vast new buildings of the N.A.M. are still in the process of completion, but they should all be on show by the end of this year at the latest.

The third such organization with which I am personally acquainted is the Institute of Aeronautical Sciences, at 2, East 64th Street, New York City. There will be found one of the finest collection of books, documents and historical photographs dealing with American aircraft and aviation in general. Anybody who cares to do so may obtain photostats of a wide variety of these documents for a small fee (25c. to 75c.) and any number of scale-model kits of famous old-time American and British aircraft. DENNIS M. POWELL.

Prestwick, Ayrshire.

FOOD AT FARNBOROUGH

An Appeal for Improved Catering Facilities at the S.B.A.C. Display

NOW that organization of this year's S.B.A.C. Display at Farnborough is, presumably, under way, might one appeal to the S.B.A.C. to give earnest thought to the gastronomical aspect in order that last year's lamentable offerings be not repeated?

I still have depressing memories of queueing for an endless period (which might have been more profitably spent in studying some very interesting aircraft) in order to consume, in considerable discomfort, an inadequate and pallid imitation of a "high-class" lunch at a price of, I seem to remember, somewhere in the region of 8s. Nor did it appear possible, during the morning, to obtain anything in the nature of coffee or other "elevenses."

May I suggest to those responsible for the catering that an unlimited supply of reasonably good sandwiches and coffee or tea (apart from alcoholic refreshment), available at any time, would be much more convenient and appropriate at an affair of this sort? By all means let "sit-down lunches" be retained (some people might want to entertain prospective customers), but please let there be some quick-and-easy facilities also.

Kingston-on-Thames, Surrey. FALSTAFF.

AN A.R.B. YEAR

(*Concluded from page 660*)

Minister that they were not to be too much "messed about," they could tackle the many problems with that confidence in the future which they thought they deserved.

LORD PAKENHAM paid a high tribute to the Board for their work on investigating the *Star Ariel* mishap and for studying the whole Tudor situation.

Turning to the Helmore Committee, whose report is to be published shortly, Lord Pakenham said that committee had a thankless task. The members were patriotic gentlemen who went into the problems and reached certain conclusions. "It will be evident," Lord Pakenham said, "when the report is published that we have accepted a number of their findings, but there is this very controversial suggestion: that I should appoint the Board, and I should hesitate a long time before I accepted a conclusion of this kind." He did not intend to reach a hasty decision. The dilemma was a financial one. If a large proportion of the money for the Board was to come from the Treasury, then that made it all the harder to give the Board that complete autonomy which they regarded as their right.

MAJOR R. H. THORNTON made one of the wittiest after-lunch speeches we have heard for a very long time, though one which cannot fairly be summarized. He was proposing the toast to the guests, and managed to score many hits which lost some of their sting by the witty phrasing and bantering tone. Concerning operators, Major Thornton asked his audience to bear in mind the following facts: the modern airliner was not intrinsically safer than its predecessor of twenty years ago; if one wished to relax completely in an aircraft, one chose an obsolete one; there were operators who used nothing but obsolete aircraft, yet whose safety record was impeccable; and the widely varying records of operators who used the same equipment showed that practical safety was not so much due to the technical excellence of the aircraft as to the human excellence of the organization.

They should think carefully before deciding that when the initial spate of modifications of an aircraft had dwindled to a trickle—in fact, when the aircraft really worked—that aircraft should be thrown on the scrap heap.

SIR MILES THOMAS, on behalf of the guests, expressed gratitude to the Air Registration Board for the contribution they had made to the first prerequisite of civil aviation: safety. The Board was doing excellent work and no one could have other than praise for the way in which it operated.

SERVICE AVIATION

CLEAN SWEEP: An exceptional degree of aerodynamic cleanness is manifest in this first flying view of the Supermarine 510 (Rolls-Royce Nene) flown by Mr. "Mike" Lithgow. Unlike the first prototype Hawker P.1052, this Attacker development has swept-back tail surfaces.

"Exercise Foil"

AN important feature of Exercise *Foil*, a test of Great Britain's air defences to be held from Saturday, June 25th, to Sunday, July 3rd, will be participation of Western Union air forces. France, Belgium and the Netherlands are to send observers, some of whom will have active tasks. Holland will also contribute a squadron of Meteors—to be based at Thorney Island—to the defending forces.

Taking the form of defence by A.A. guns and fighters against an attacking bomber force, Exercise *Foil* will employ most of Fighter Command's metropolitan day- and night-fighter squadrons, units of Bomber, Coastal and Flying Training Commands, and B-29 Superfortresses of the Third Air Division, U.S.A.F. Hornets of Fighter Command will join the attacking bombers for "penetration" strikes. Gun defence areas, A.A. operations rooms and control and reporting detachments will be at readiness, and —at week-ends—the fighter squadrons and fighter control units of the R.Aux.A.F., Territorial A.A. regiments and the Royal Observer Corps will support the defending regulars.

As controller of the air defences, Air Marshal Sir Basil Embry, A.O.C.-in-C. Fighter Command, will generally direct the whole exercise; the attacking forces will be under the joint control of Air Marshal Sir Aubrey Ellwood and Maj. Gen. Leon Johnson, Commander of the U.S. Third Air Division.

Areas of the exercise will be south of a line from Mablethorpe, Lincs, to Southport, Lancs, and north of the line from Dover to Llandow, Glamorgan. Activity will be most concentrated in the eastern section.

Recruiting Results

WHEN the Secretary of State for Air, Mr. Arthur Henderson, took the salute at a passing-out parade of R.A.F. administrative apprentices at St. Athan on May 27th, he announced that the R.A.F. had taken in 20,000 new regular recruits—an average of 700 a week—since the recruiting campaign began last September.

Chaplain to the King

IT is announced that the Chaplain-in-Chief of the Royal Air Force, the Rev. Leslie Wright, has been appointed an Honorary Chaplain to the King, in succession to the Rt. Rev. J. A. Jagoe. The Rev. Wright has been Chaplain-in-Chief since March 31st, when Dr. Jagoe retired from the R.A.F. and became Bishop of Bermuda.

"Sunray" with a Difference

SINCE the summer of 1947, Lancasters or Lincolns of Bomber Command have been making regular monthly flights to the Middle East, to take advantage of the better weather available for bombing and air firing practice. Six Lincolns of No. 617 Squadron, due to leave England at 0200 hours yesterday morning, were to make the first non-stop flight from this country to Shallufa, in the Canal Zone, where training is undertaken, in conjunction with fighter squadrons.

Previously, squadrons engaged in Exercise *Sunray*, as the operation is styled, have landed at Castel Benito, Tripoli, *en route* for Shallufa. No. 617 Squadron, commanded by S/L. P. G. Brodie, was to fly via Istres, Elmas (Sardinia) and Luqa (Malta).

Death of Capt. Jolliffe

A MEMORIAL service for Capt. R. L. Jolliffe, who died on May 7th, was held at Holy Trinity Church, Marylebone Road, London, on Friday, May 20th. A trophy awarded annually to the best R.A.F. station dining hall is named after Capt. Jolliffe who was honorary catering adviser to the R.A.F. for several years.

Middlesex Recruiting Pageant

ON behalf of local T.A., R.Aux.A.F. and R.A.F.V.R. units, the County of Middlesex Territorial and Auxiliary Forces Association is staging a recruiting pageant in the Edmonton and Tottenham area on Sunday, June 5th. The Chief of the Imperial General Staff, Field Marshal Sir William Slim, will take the salute at the Territorial Centre in High Road, Tottenham, at a parade of Army and R.A.F. reservists.

Overhead will be Spitfires of No. 604 (County of Middlesex) Squadron, Tiger Moths from No. 1 Reserve Centre, Panshanger, and Meteors of 500 (County of Kent) Squadron. Weather permitting, the fly-past height will be 1,000ft. Navigators and signallers of the V.R. will send R.T. messages, from Ansons on normal training flights, which will be relayed to spectators by a control van of No. 2604 (County of Middlesex) Fighter Control Unit.

Pathfinder Association

LEGAL and personal advice, an employment bureau, and a welfare fund are among facilities available to ex-members of the Pathfinder Force who join the Pathfinder Association. Subscription to the Association, which re-

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mains at £1 per year, also covers membership of the Pathfinder Club, which is situated in Mount Street, London, W.1, and offers excellent food and luxurious residential quarters. Subject to proposal by Pathfinders, membership of the club is also open to other members of the three Services at a subscription of £2 2s per year.

R.Aux.A.F. Summer Camps

TWO squadrons of the Royal Auxiliary Air Force are to spend their two-week annual camp at Sylt, in Germany. The Vampire 1 aircraft of No. 605 (County of Warwick) Squadron, commanded by S/L. R. C. T. Goodwin, will arrive on June 18th, and No. 615 (County of Surrey) Squadron, flying Spitfires and commanded by S/L. A. Barker, D.F.C., on August 20th. Both squadrons will fly from their bases to R.A.F. Manston, from which they will make the 375-mile hop across the North Sea to Sylt.

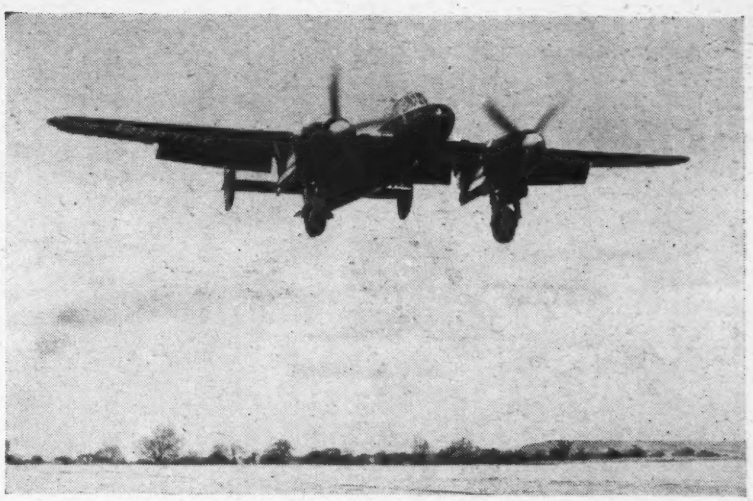
An intensive programme of training—identical with that of the R.A.F.—has been arranged at the Sylt armament practice camp, with concentrated air-to-air and air-to-ground firing exercises.

Training camps for the other Auxiliary squadrons will take place at three regular fighter stations—Thorney Island, Tangmere and Horsham St. Faith. Present arrangements are as follows:—

Thorney Island: 600 (City of London) Sqn., June 11th-25th; 613 (City of Manchester) Sqn., June 25th-July 9th; 612 (County of Aberdeen) Sqn., July 9th-23rd; 609 (W. Riding) Sqn. and 610 (County of Chester) Sqn., July 23rd-August 6th; 611 (W. Lancs) Sqn. and 616 (S. Yorkshire) Sqn., August 6th-20th); 500 (County of Kent) Sqn., August 20th-September 3rd.

Tangmere: 604 (County of Middlesex) Sqn., May 28th-June 11th; 601 (County of London) Sqn., June 11th-22nd; 608 (N. Riding) Sqn., June 9th-July 9th; 502 (Ulster) Sqn., July 9th-23rd; 501 (County of Gloucester) Sqn., August 6th-20th.

Horsham St. Faith: 504 (County of Nottingham) Sqn., June 25th-July 9th; 603 (City of Edinburgh) Sqn., July 2nd-16th; 602 (City of Glasgow) Sqn., July 16th-30th; 607 (County of Durham) Sqn., July 23rd-August 6th; 614 (County of Glamorgan) Sqn., August 6th-20th.



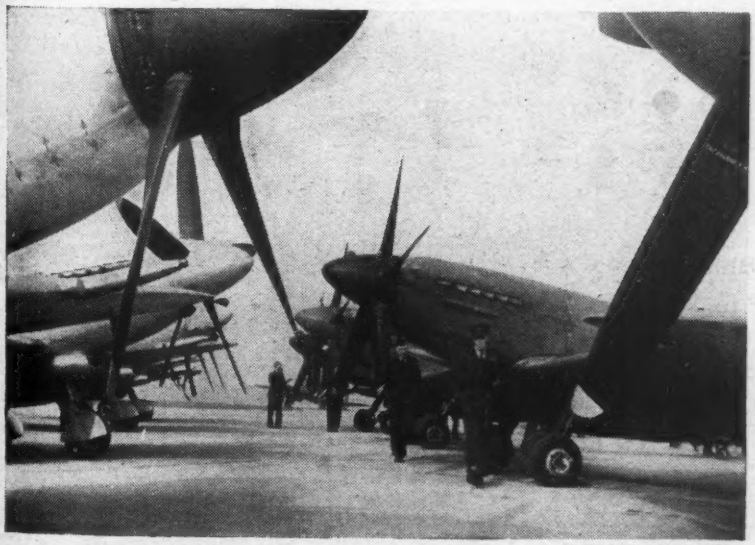
TOUGH HOMBRE: The Bristol Brigand attack-bomber "totes" four 20mm. guns and 3,200lb of bombs, or, alternatively to bombs, eight rocket projectiles and a double ration of ammunition for the guns.

R.A.F. Appointments

NEW overseas appointments announced by the Air Ministry are those of A.V-M. F. J. W. Mellersh, C.B.E., A.F.C., as A.O.C. Air Headquarters, Malaya, and of A.V-M. R. S. Blucke, C.B., C.B.E., D.S.O., A.F.C., who succeeds him as Air Officer in Charge of Administration, Air Command, Far East. Both appointments take effect from May 13th.

Before going to the Far East last August, A.V-M. Mellersh commanded No. 21 Group, Flying Training Command, for 15 months. Much of his wartime service was spent overseas. Early in the war he was S.A.S.O. in Bengal and in Ceylon, and after commanding first No. 91 (Bomber) Group, and then the R.A.F. Staff College (Allied Wing), went on to planning duties at A.C.S.E.A. Headquarters, followed by 18 months in charge of No. 231 Group, in the same Command. He was born in 1898 and entered the R.A.F. in 1918.

Until recently, A.V-M. Blucke was A.O.A. Technical Training Command. He took up this appointment in December, 1947, soon after his return from India, where he had been S.A.S.O. at Air H.Q., New Delhi. Before going to India he was A.O.C. No. 1 Group Bomber Command from February, 1945, to December, 1946. At the outbreak of war he was serving with the Blind Approach Training and Development Unit, which he subsequently commanded. In 1940 the Unit was used to investigate the "Knickebein" system used by the Luftwaffe to direct aircraft on to targets in the United Kingdom. A.V-M. Blucke is 51 and entered the Service in 1918, transferring from the Dorset Regiment.



"Flight" photograph.

SEARCHERS—HIGH AND LOW: No. 2 Squadron, equipped with Spitfires for reconnaissance duties, uses Mark 14s (left) for fully armed, low-level tactical work and cerulean blue Spitfire 19s for longer range high-altitude missions. A history of this pioneer squadron will be a feature of "Flight" of June 9th.

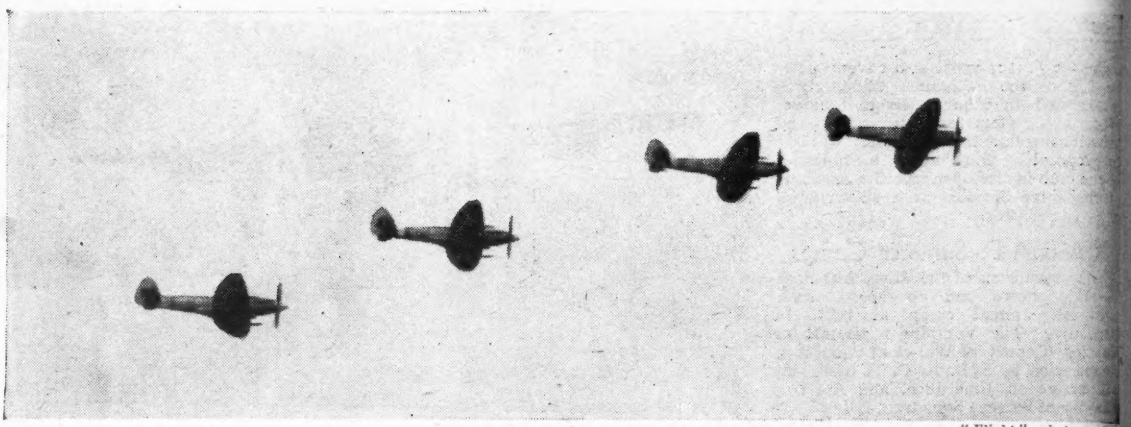
To Mark the Spot

IN the officers' mess at R.A.F. Station Tangmere, on May 21st, Mr. Geoffrey Dorman presented the station with a propeller which he damaged in 1916 during a forced landing in a field which is now part of Tangmere airfield. As Lt. Dorman of the R.F.C., he was on a training flight from Shoreham to Gosport in an F.E.2B.

Accepting the presentation, the Station Commander, W/C. G. Parnaby, D.S.O., said that "it would be given an honoured place for all time." As they now flew aircraft without propellers [Meteor 4s operate from Tangmere] such an event was not likely to happen again; and in addition, the site of Mr. Dorman's arrival had been greatly enlarged in case it had ever been necessary for him to land there again.

Carlisle Naval Display

IT is hoped that, as part of the programme for the Navy Day to be held by R.N. Air Station Anthorn on the afternoon of Saturday, July 16th, there will be demonstrations of the Attacker by Mr. M. Lithgow, of gliding by Lt. Cdr. Sproule, and of formation aerobatics by



"Flight" photograph.

AUXILIARIES ON PARADE: Seen in line astern stepped down are four Spitfire 22s of No. 504 (County of Nottingham) Squadron during the recent Sywell display. Formation leader is S/L J. M. Birkin, D.S.O., D.F.C.

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a Naval Squadron. The organizers expect to double last year's attendance of some 6,000 people. Price of admission will be 1s for adults and 6d for children and for Forces in uniform; all profits will go to Naval charities. R.N.A.S. Anthorn, which is commanded by Capt. (E) F. G. S. Bowring, is situated near Kirkbride, Carlisle.

R.A.F. *Permanent Commissions*

THE following officers have been selected for permanent commissions in the Royal Air Force, in the branches shown:

GENERAL DUTIES BRANCH.

Wing Commander: F. R. Jeffs, A.F.C.

Squadron Leader: B. A. Q. Wynyard-Wright.

Flight Lieutenants: N. P. W. Conquer, R. S. Crawford, J. Davies, A.F.C., R. A. Duncombe, P. W. Edmonds, P. R. M. Ellison, D. H. Gardner, G. W. Massey, D. K. Miller, E. T. Molineux, R. A. Patterson, A. F. Peers, C. J. Samouelle, D.F.C., A. H. E. Welch, D.F.C.

Flying Officers: J. A. Carpenter, R. R. Edwards, E. J. Hamilton, A. J. J. A. Nahlik, F. Rimmer, D. L. Scott.

TECHNICAL BRANCH.

Squadron Leaders: W. K. Bell, G. W. M. Dunn, A. A. Hay, B.E.M., E. Johns, M.B.E., G. J. Pearn, S. H. Phillips, J. H. I. Stirling.

Flight Lieutenants: A. S. Baker, H. Butcher, B. C. Cooper, H. J. W. Coward, L. Creighton, P. W. Hancock, F. G. Harley, L. Hutton, H. Lanning, D.F.C., L. Morgan, J. T. Scanlon, S. D. Singleton, S. B. Stephens, F. L. Walton, R. G. Wellcomme.

EQUIPMENT BRANCH.

Flight Lieutenant: H. W. Oliver.

Flying Officers: L. C. Carpenter, C. E. Crocker, W. I. Joll, J. C. Newbrook.

SECRETARIAL BRANCH.

Squadron Leader: E. A. Tilling.

Flight Lieutenant: S. J. Arnfield, D.F.C.

R.A.F. REGIMENT.

Flying Officers: G. A. Dunsmore, S. I. Rowe.

AIRCRAFT CONTROL BRANCH.

Flight Lieutenants: J. Oakley, E. A. Sanders, D.F.C., L. A. Scofield.

Flying Officers: R. G. Grocott, N. W. V. U. MacDonald, A. W. J. Roberts, H. C. Sharpe, B.E.M.

MARINE BRANCH.

Flight Lieutenant: S. J. Easton.

Flying Officer: A. E. Scoble, B.E.M.

CHAPLAINS' BRANCH.

Rev. J. J. Strong (C. of E.).

EDUCATION BRANCH.

Flight Lieutenant: G. Culshaw, B.A.

Sunderlands Evacuate Shanghai

CREWS of three R.A.F. Sunderlands which moved 95 British subjects from Shanghai to Hong Kong on May 17th reported that gunfire was clearly heard within the alighting area. On completion of the operation, the British Consul-General in Shanghai expressed thanks to all concerned for a fine piece of teamwork.

Auxiliary Appointment

WITH effect from November 5th last, Maj. A. G. Collings has been appointed to command No. 2604 (County of Middlesex) Light A.A. Squadron of the R.Aux.A.F., which is based at Stanmore Park; he takes the rank of Squadron Leader. First commissioned as a member of the T.A. in 1933, S/L. Colling was employed on airfield and factory defence during the war, and won a King's Commendation for his work with auxiliary bomb-disposal squads. He is at present a member of the sales department of A. V. Roe and Co., Ltd.

HELLO TOWER . . . . A ground check of the Meteor 4's four-channel V.H.F./R.T. equipment is a major item on the daily servicing schedule for wireless fitters employed on these aircraft.

Reunions

THE third annual reunion for all former members of No. 219 Squadron during the recent war (including members of 6219 and 6029 Servicing Echelons) will be held in the Clarendon Restaurant, Hammersmith Broadway, London, on Saturday, October 22nd. Tickets (including refreshments, £1 10s) from S/L. D. W. B. Farrar, Officers' Mess, R.A.F. Leeming, Northallerton, Yorks.

* * *

Details of a reunion for former members of No. 106 Squadron, to be held at the Connaught Rooms, Kingsway, London, at 7.30 p.m. on Saturday, June 25th, may be obtained from S/L. F. Combie, R.A.F. Brize Norton, Oxon.

Spare-time Service Police

THE Air Ministry announces the formation of six police flights within the R.A.F.V.R., to provide former members of the R.A.F. Police with an opportunity for spare-time training. They will be situated at the Bishopbriggs (Glasgow), Long Benton (Newcastle), Alvaston (Derby), Cambridge, Stanmore Park (Middlesex), and Pucklechurch (Bristol) Reserve Centres. All who served in the R.A.F. Provost Branch during the war will be eligible to join the flights, which will consist of 29 men commanded by an R.A.F.V.R. flight lieutenant. Flight commanders are now being personally selected by A. Cdre. O. W. de Putron, Provost Marshal and Chief of R.A.F. Police.

There will be short training periods—solely theoretical—in the evenings, and at the week-ends, for members of the police flights, as well as 15 days' annual camp at No. 1 R.A.F. Police Wing H.Q. at Pershore. During the annual camp activities will include small-arms practice, battle training, P.T. and sports. Conditions of service are the same as those for the rest of the V.R., including tax-free training bounty, allowances and expenses.

Members of the civilian police force may not join the flights, but those who were Provost Branch officers or N.C.O.s may place their names on the Supplementary List (which has no training liability) subject to their release for R.A.F. service in an emergency being left to their Chief Constable's' discretion.

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